

# incider

# A+

THE APPLE II MAGAZINE

AN IOG COMMUNICATIONS PUBLICATION  
December 1989

## 200 GREAT BUYS!

For \$99.99 and Under

### After the Hoopla:

Living with  
AppleWorks 3.0

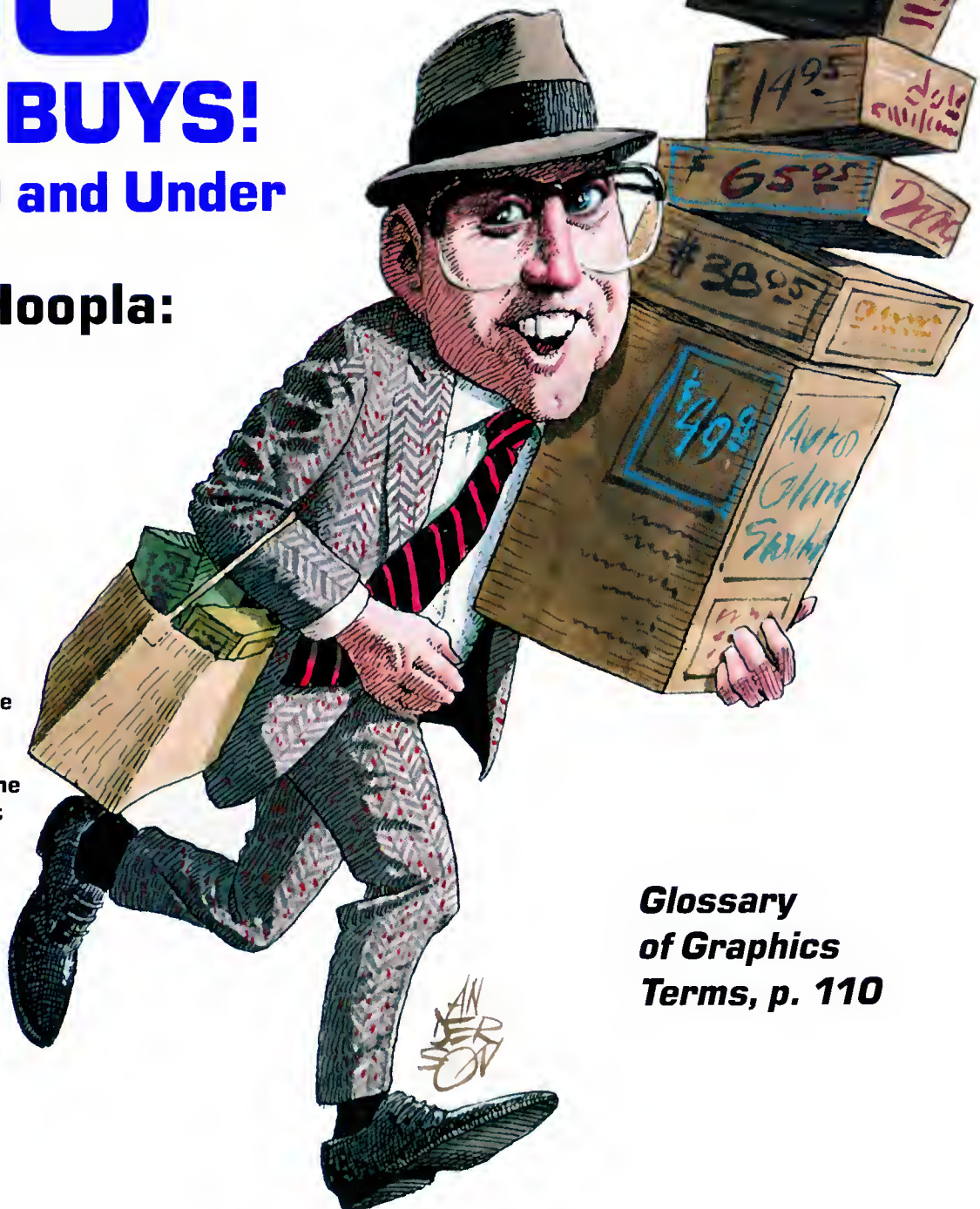
### 1989:

The Breakthroughs  
And the Bow-Wows

#### Reviews:

- Teleworks Plus
- Monsters & Make-Believe
- Kidwriter Golden Edition
- Floating Point Engine
- Joshua's Reading Machine
- Great Western Shootout
- Jack Nicklaus Presents  
the Major Championship  
Courses of 1989
- Journey

USA \$3.95  
Canada \$4.50  
U.K. £2.50



**Glossary  
of Graphics  
Terms, p. 110**

# Six More Great Reasons to Buy an Echo for Your Computer.

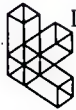
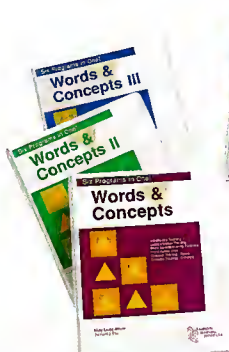
1.



**Houghton Mifflin**

(617) 252-3000

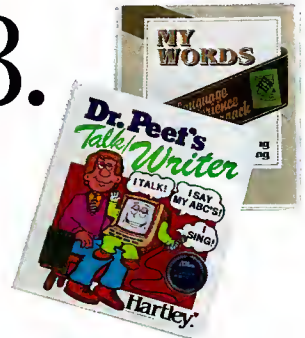
2.



**Laureate Learning Systems, Inc.**

(802) 655-4755

3.



**Hartley**

(800) 247-1380

4.



\*\*\*\*\*  
\*\*\*\*\* **DLM**

One DLM Park • Allen, Texas 75002

(800) 527-4747

5.



**SCHOLASTIC**

(800) 541-5513

6.



**PELICAN® SOFTWARE, INC.**

(800) 247-4641

(800) 222-7026

Teachers and parents have found that talking software greatly enhances computer-based learning. Children enjoy the novelty of having their computer talk to them; their attention span is increased, verbal cues and reinforcement help non-readers, and learning becomes more personalized and fun.

While there are a few programs that use the Apple IIGS® built-in voice

capability, for most of the Apple II family "talking software" it is still necessary to use an Echo Speech Processor.

These six leading software companies have helped the Echo® become the voice standard for educational computing. Call the telephone numbers listed above to find out more about these great programs.



Street Electronics Corporation

6420 Via Real

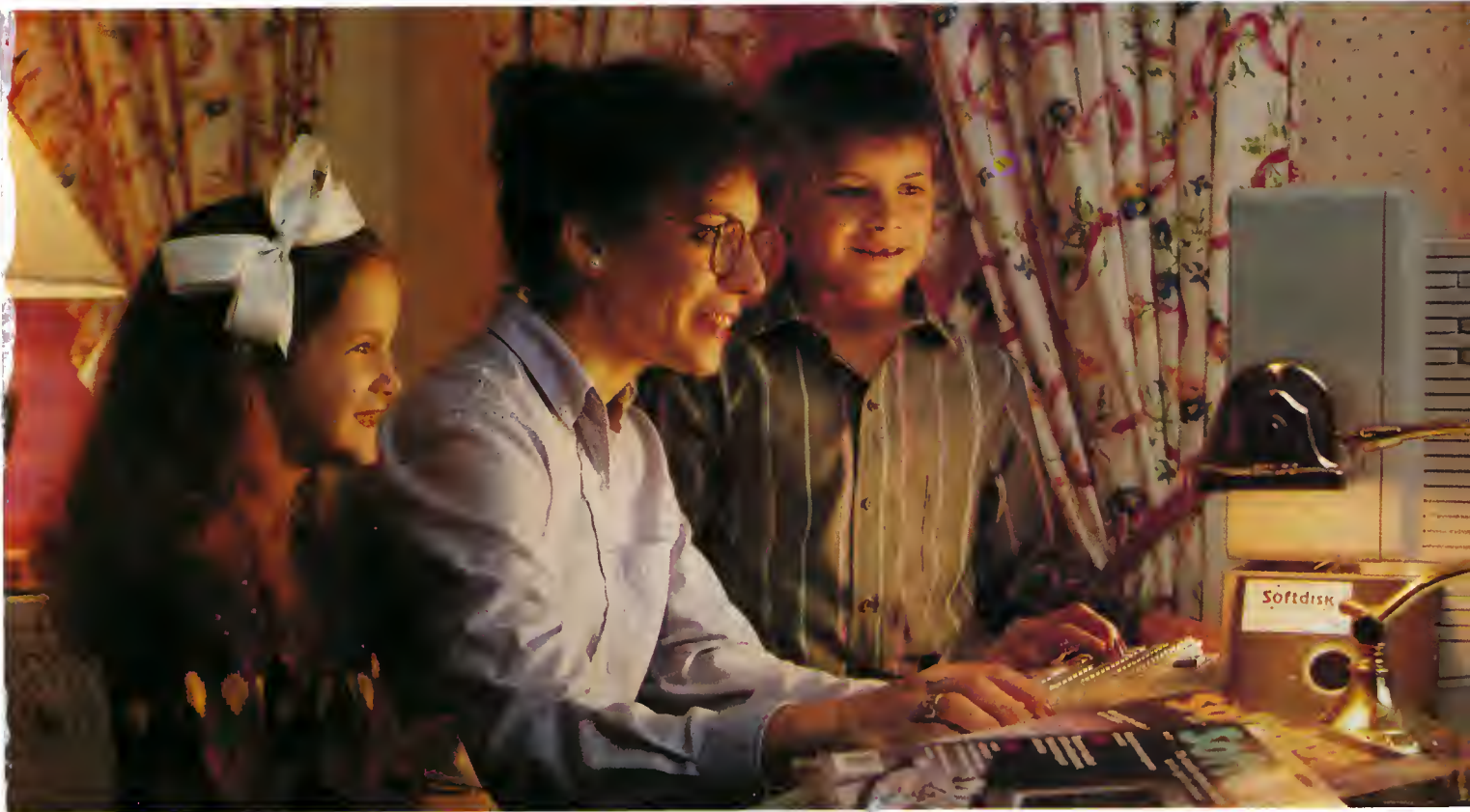
Carpinteria, California 93013

(805) 684-4593

Circle 92 on Reader Service card.



# We turn Apple® owners into Apple users. For only \$6.65 a month.



A subscription to Softdisk brings you two 5¼" disks\*, chock-full of great programs for your Apple® II (c, e, +, c+) each month for just \$6.65.

## Learn all the capabilities of your Apple II.

Softdisk takes you beyond the two or three programs you bought for your Apple II. Without spending a fortune, Softdisk will introduce you to new software *you can use* each month. You will get AppleWorks™ templates, spread sheets, accounting applications, graphics, educational programs and specialized utilities that make your Apple II easier to work with. There are even some terrific games as a bonus.

Softdisk programs are *original software*, not public domain, so you will build a quality software collection as you learn. Each month you will sharpen your computing skills and become a smarter software buyer. You just can't buy better computing experience.

Contents of Issue #84  
(Available as a back issue)

**Thousand-Year Date Book**—Keep track of important appointments.

**Li'l Black Book**—AppleWorks™ template that helps you keep track of names, addresses and phone numbers.

**Print Shop™ Graphics**—Flags from all over the world.

*Plus 8 more great programs!*



## FREE SOFTWARE with your order.

Try Softdisk for six months for only \$39.95. As a bonus, we will send you FREE—200 Print Shop™ Graphics Vol. 4 for use with Brøderbund's Print Shop™ program.

## Money-back guarantee.

If you are not satisfied with your purchase for any reason, return your first issue for a full refund. The 200 Print Shop Graphics are yours to keep. You can't lose, so order today!

**Call toll free 1-800-831-2694.**

**YES!** Please rush me my free 200 Print Shop Graphics Vol. 4 and start my six-month subscription to Softdisk for my Apple II for only \$39.95 postage paid. (Canada/Mexico \$49.95, Overseas \$59.95) Make checks payable to Softdisk, Inc. in U.S. funds. (Louisiana residents add 4% sales tax).

☐ Two 5¼" disks ☐ One 3½" disk

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip + 4 \_\_\_\_\_  
Home Phone (\_\_\_\_\_) \_\_\_\_\_  
☐ Discover ☐ AmEx ☐ VISA/MC ☐ Payment Enclosed (U.S. funds only!)  
Card # \_\_\_\_\_ Exp. \_\_\_\_\_  
Signature \_\_\_\_\_

**SOFTDISK, INC. P.O. Box 30008 • Shreveport, La. 71130-0008 IN129**

\*Also available on a single 3½" disk. Apple and AppleWorks are trademarks of Apple Computer Inc. Print Shop is a trademark of Brøderbund Software. Circle 292 on Reader Service Card.

# Look Here First!

**Quality Computers 1-800-443-6697**

*Attn: Price Hunters:  
We'll match any  
price! Plus, our  
service can't be  
beat!*

## Hot! ACCESSORIES

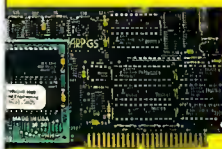
### GS-RAM PLUS

Applied Engineering's new, fully DMA compatible memory card for the IIGS. Simply plug GS-RAM Plus into your memory expansion slot for up to 8 megabytes of RAM at your finger tips. Compatible and expandable.  
1 meg. \$249, 2 meg \$369, 3 meg. \$489



### TRANSWARP GS

Compute at warp speed with the most advanced accelerator ever produced. Increases the speed of your IIGS by more than 200%. Fully compatible. No special software needed. \$289



### ROCKETCHIP II

Accelerator chip for the II, II Plus, IIC, and IIE. Easy to install, requires no slot, and consumes less power than other accelerators. Variable speed from 50 kHz to 10 MHz, and can return to normal operating speed with one keystroke. \$199



### AMR 3.5 DRIVE

The only non-Apple drive that really works with the IIGS, IIC, IIE, and Mac. The AMR drive is 100% compatible with your 3.5 disk port on your GS. The perfect choice whether you're adding a second disk drive or looking for your first. \$189



## HARD-DISKS



### CHINOOK

CT20 ..... \$599  
CT40 ..... 795  
CT20C ..... 629  
CT40C ..... 849  
CT80 ..... Call



### CMS

20 meg. .... \$629  
30 meg. .... 719  
45 (removable) 899  
60 meg. .... 799  
80 meg. & up . Call



### SIDER

D2 ..... \$499  
D4F ..... 799  
D4T ..... 855  
D9 ..... 1,245  
C96 ..... 1,895



### INNER

20 meg. .... \$469  
40 meg. .... 589  
Overdrive ..... Call



### VULCAN

20 meg. .... \$539  
40 meg. .... 689  
100 meg. .... 1,295

*We are the  
Hard-disk experts!  
Let us recommend  
the unit that is  
right for you!*

### AMR

20 meg. .... \$599  
60 meg. .... 795  
45 meg. (removable) ..... 1,199

### RELAX w/ Apple SCSI

20 meg. .... \$539  
40 meg. .... 679  
80 meg. .... 859

## HARD-DISK BUYER'S GUIDE

Base your decision to buy a hard-disk on fact, not fiction. The Hard-Disk Buyer's Guide is packed with performance reports and charts on all the top brands. Make the smart move. Get the Hard-Disk Buyer's Guide before you buy. \$6 Shipped overnight. (redeemable when you buy a hard-disk from Quality Computers.)

## Q LABS



### EASYDRIVE

The complete hard-disk management system for the Apple II. Loaded with features. A must for every hard-disk owner. \$59.95

### SUPERPATCH

Selective AppleWorks enhancements and modifications. Install over 150 patches on 2.0 and 2.1. Over 50 available for 3.0 and more to come. Fully compatible \$34.95

### CHINOOK SCSI TOOLS

Hard-disk enhancement designed to maximize your drive's performance. Select optimum interleave ratio, map out bad blocks and more! \$34.95

### REPAIRWORKS

AppleWorks data repair and retrieval program. Reduces or eliminates the need to recreate your work. inCider Magazine Editors' Choice. \$34.95





**Business Software**

AppleWorks 3.0 .....	189.00
AppleWorks GS .....	214.00
BeagleWrite II GS .....	52.00
8W Bundle .....	269.00
BW Parpall .....	109.00
DB Master Pro .....	189.00
Dollars & Sense .....	74.00
GS Font Editor .....	29.00
MYM 4.0 .....	94.00
On Balance .....	39.00
ProgramWriter .....	29.00
PublishIt 2.0 .....	84.00
Sensible Grammar .....	52.00
Symbols & Slogans .....	27.00
TimeOut Series .....	
DeskTools I, II, FileMaster,	
PowerPack, SpreadTools,	
Thesaurus .....	29.00
MacroTools I, II .....	16.00
SideSpread, Ultramacros .....	37.00
ReportWriter .....	45.00
Graph .....	52.00
WordBench .....	97.00
WordPerfect IIe .....	94.00
WordPerfect II GS .....	94.00

**Games & Entertainment**

Cal Games GS .....	23.00
Carmen Europe, USA .....	29.00
Carmen World .....	25.00
Carmen World GS .....	29.00
Cartooners .....	44.00
Chuck Yeager .....	
Flight Simulator .....	26.00
DiversiTime .....	52.00
Hardball GS .....	27.00
Hunt for Red October GS .....	37.00
Jack Nicklaus Golf GS .....	34.00
Mean 18 GS .....	27.00
Mini Putt GS .....	27.00
Serve & Volley GS .....	27.00
Shadowgate .....	32.00
Test Drive GS .....	27.00
4th & Inches GS .....	27.00

**Graphics Packages**

Dazzle Draw (AP or IIc+) .....	39.00
Deluxe Print II, IIGS .....	65.00
Design Your Own Home .....	
Architecture, Interiors,	
Landscape .....	59.00
Libraries .....	21.00
Graphics Exchange .....	35.00
Draw Plus .....	64.00
PrintShop GS .....	36.00
PrintShop (AP or IIc+) .....	29.00

**Utilities & Languages**

Copy II+ .....	23.00
Orca/M Assembler GS .....	39.00
Orca Desktop Debuggers .....	80.00
Prosel 8 .....	39.00
Prosel 16 .....	59.00

**Genuine Apple**

Apple Mouse IIe .....	119.00
Apple Mouse IIc .....	89.00
Apple SCSI .....	109.00
Apple Unidisk 3.5 (IIe, IIc+) .....	319.00
Apple 3.5 Disk Drive .....	
(GS, IIc+) .....	329.00
ImageWriter II .....	59.00
Unidisk Controller .....	69.00
IIe Enhance .....	59.00

**Monitors**

12" Amber .....	99.00
12" Green .....	99.00
Magnavox RGB (GS) .....	289.00
Sony KV1311 (GS) .....	529.00

**Printers**

Panasonic 1191i .....	259.00
ImageWriter II .....	459.00

**Printer Interface Cards**

SMT's .....	54.00
Fingerprint GSI .....	79.00
Fingerprint Plus .....	89.00
Fingerprint Serial w/cable .....	59.00
Grappler/ProGrappler .....	84.00/79.00

**Disk Drives**

AMR 3.5 (IIGS, IIe) .....	189.00
Laser 3.5 .....	185.00
UDC .....	49.00
Laser 5.25 .....	99.00
AMR 5.25 Daisy Chain .....	149.00
MP6 Double-sided .....	179.00

**Computers**

Laser 128 ex .....	399.00 Special!
Laser 128 .....	369.00

**Accessories**

Antiglare Screen GS .....	39.00
Computer Eyes IIe .....	99.00
Computer Eyes IIGS .....	199.00
Diskettes .....	
3.5 (10) .....	8.95
5.25 (10) .....	6.95
Disk Holders 3.5 & 5.25 .....	12.00
Dust Covers .....	12.00
Flight Stick .....	52.00
Mach III .....	36.00
Mach IV .....	62.00
Midi Interface .....	
w/Drum (AP & IIGS) .....	89.00
Midi Interface w/Tape .....	
w/Drum (AP & GS) .....	134.00
Mitac 2400 Modem .....	129.00
Muffler 80 .....	43.00
ImageWriter II Ribbon Back .....	5.00
ImageWriter II Ribbon Color .....	10.00
Rollermouse NEW! .....	119.00
Security System .....	34.00
SMT No Slot Clock .....	39.00
SS IIe .....	59.00
SS IIGS .....	69.00
Turbo Mouse .....	115.00

**Memory Chips**

256K (fully comp./5 yr. war.) .....	39
1024K (fully comp./5 yr. war.) .....	109

**Applied Ingenuity**

GS Juice 1 meg. ....	199.00
GS Juice 2 meg. ....	299.00

## ATTENTION: CANADIAN RESIDENTS

In order to serve you better, Quality Computers has formed a partnership with **Dandam Software** of Windsor, Ontario. All of these products, with the same great service, are available to you from Dandam. Avoid import-export delays and worries. Dandam ships from their Canadian warehouse.

**Laser 128EX/2**

with 2-year Canadian warranty ..... **Call**

Laser 3.5 Drive ..... **\$259 Can.**

with U.D.C. .... **\$334 Can.**

Laser 5.25 Drive for IIe and IIc ..... **\$135 Can.**

Vulcan & Inner Hard-Disks ..... **\$719 Can.**

**SPECIAL! GS-RAM Plus 1024K ..Best Price in Canada**

We are an authorized Applied Engineering dealer with a large selection of Apple II software. We also carry: Time Out Series, Springboard, TimeWorks, Epyx, Modems, AMR 3.5 Drives, RocketChips, etc.

**Call for Free Catalogue: 1-800-265-9576**

8408 Wyandotte Street, E. Windsor, Ont. N8S 1T6  
(519) 974-3011

## HYPERSTUDIO



The hypermedia system for the IIGS. Integrates text, graphics and sound. Comes with paint tools, Text editor, sound editor, amplified speaker, sound digitizing hardware, microphone, and complete documentation. **\$79**

## AE APPLIED ENGINEERING

**RAMWORKS III**

256 K .....	149
512K .....	199
1 Meg. ....	299

**ULTRA II**

256K .....	179
512K .....	229
1 Meg. ....	329

**RAMFACTOR**

256K .....	179
512K .....	229
1 Meg. ....	329

**GS-RAM**

256K .....	139
512K .....	189
1 meg. ....	289
1.5 meg. ....	389

**GS-RAM Plus**

1 meg. ....	249
2 meg. ....	369
3 meg. ....	489

**GS-ULTRA**

1 meg. ....	259
2 meg. ....	389

**RAMWORKS**

1 meg. ....	279
2 meg. ....	379

**RAMFACTOR EXP.**

1 meg. ....	279
2 meg. ....	399
3 meg. ....	429

AE 5 1/4 .....	119
COLORLINK .....	99
CONSERV .....	95
DATALINK 2400 .....	179
EXTENDED 80 COL. ....	99
PARALLEL PRO .....	79
PC TRANSPORTER .....	369
PC TRANSPORTER (IIe Kit) .....	29
PC TRANSPORTER (IIGS KIT) .....	39
PHASOR .....	139
POWER SUPPLY .....	59
RAMCHARGER .....	133
RAMKEEPER .....	139
READYLINK .....	69
SERIAL PRO .....	109
SLOT MOVER .....	34
SONIC BLASTER .....	98
TIMEMASTER .....	69
TRANSDRIVE (Single) .....	199
TRANSDRIVE (Duo) .....	299
TRANSWARP (IIe) .....	119
TRANSWARP (GS) .....	289
VIEWMASTER .....	124
VULCAN 20 (IIe & IIGS) .....	539
VULCAN 40 (IIe & IIGS) .....	689
VULCAN 100 (IIe & IIGS) .....	1,295
Z80 .....	119

**WE'LL MATCH ANY PRICE!**

**POLICY:**

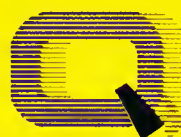
VISA, MasterCard, and Discover - no added surcharge.  
C.O.D. certified - add \$2.95.  
If order is split, we pick up freight on balance of items.  
Shipping UPS, Airborne, Federal Express and U.S. Mail.  
Saturday deliveries available.

**RETURNS:** Defective software will be placed immediately with the same item. Defective hardware will be replaced or repaired at our own discretion. Call customer service at 313-331-1120 to obtain a return authorization number before returning goods.  
Product purchase in error subject to 15% restocking fee.

**SCHOOLS:** Schools are half of our business. We accept school P.O.'s by mail or by fax. Call us. We'll work for you.

**DEALERS:** Call

**USER GROUPS:** Volume discounts on group purchases. Call us for details.



Circle 136 on Reader Service Card.

**Quality Computers**

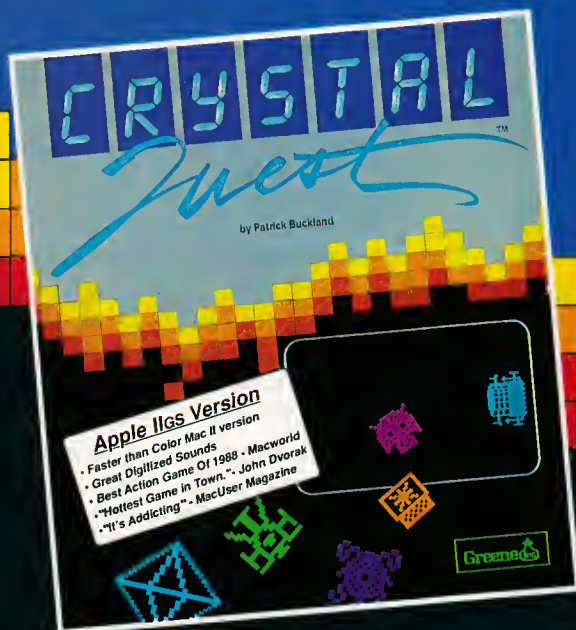
POWER FOR PERFORMANCE

15102 Charlevoix Grosse Pointe, MI 48230 313/331-0700  
Orders & P.O.'s by FAX: 313-331-0663

**1-800-443-6697**

**NEW!**  
for the IIGS

# Hottest Game in Town!



Crystal Quest is the fast-moving, adrenaline-boiling Arcade Game that is driving everyone Crystal crazy. Crystal Quest has incredible digitized sounds. Your job is to collect all the crystals while avoiding mines, bullets, and 12 different kinds of nasties which chase you through more than 40 different waves! There are nasties that hide in corners and gush bullets like a hail storm. There are nasties that bob around

quite harmlessly as long as you keep moving—but if you stop, they come at you like a cruise missile. There are nasties that can't be killed, but just hibernate for a while when shot. That's not very fair you say? That's right. It is a very nasty game!

**Available Now**  
**Crystal Quest \$49.95**

**Casady & Greene, Inc.**  
P. O. Box 223779, Carmel, CA 93922

Information & orders  
(408) 624-8716  
orders only  
(800) 359-4920

PUBLISHER Paul Boule  
EDITOR IN CHIEF Dan Muse  
MANAGING EDITOR Eileen T. Terrill  
SENIOR EDITOR Paul Statt  
SENIOR TECHNICAL EDITOR William Kennedy, Ph.D.  
REVIEW EDITOR Lefe Low  
COPY EDITOR Ellen Ratner Otis  
EDITORIAL ASSISTANT Janet Cote  
WEST COAST EDITOR Jeff Cable  
CONTRIBUTING EDITORS Joe Abernathy  
Cynthia E. Field, Eric Grevstad, Owen W. Linzmayer  
Scott Mace, Tom Sherman, Ruth K. Witkin  
FIELD EDITOR Babs Cringely

## DESIGN

ART DIRECTOR Roger Goode  
SENIOR DESIGNER/AD GRAPHICS Dianne K. Ritson  
PRODUCTION MANAGER/DESIGNER Varvara Auer

## ADVERTISING

ASSOCIATE PUBLISHER/Dale Strang  
NATIONAL SALES MANAGER (800) 441-4403  
EASTERN SALES MANAGER Peter Slingluff  
(800) 441-4403  
MARKETPLACE/CLASSIFIEDS Diane Maguire  
SALES REPRESENTATIVE (800) 441-4403  
ADVERTISING COORDINATOR Mary Hartwell  
(800) 441-4403  
ADMINISTRATIVE ASSISTANT Carmen Bryer  
WESTERN SALES MANAGER James Burns  
2421 Broadway  
Suite 200  
Redwood City, CA 94063  
(415) 328-3470  
WESTERN SALES ASSISTANT Kathleen Roberts

## MARKETING SERVICES/PROMOTION

MARKETING MANAGER Peg Brown  
MARKETING ASSISTANT Rita Rivard

## CORPORATE PRODUCTION

MANUFACTURING MANAGER Sue Gross  
TYPESETTING MANAGER Lindy Palmisano  
TYPOGRAPHER Heidi N. Thomas

## IDG COMMUNICATIONS/PETERBOROUGH

PRESIDENT Roger J. Murphy  
EXECUTIVE VICE PRESIDENT/Stephen D. Twombly  
PUBLISHING DIRECTOR  
VICE PRESIDENT Dennis S. Christensen  
MANUFACTURING/OPERATIONS  
SINGLE-COPY SALES DIRECTOR Linda Ruth (800) 343-0728  
SINGLE-COPY SALES MANAGER John T. Childs (800) 343-0728  
NEWSSTAND PRODUCTION MANAGER Debbie Walsh  
CIRCULATION DIRECTOR, INCIDER Megan Lane (800) 289-0619  
ASSISTANT CIRCULATION MANAGER, INCIDER Laurie K. Seamans  
DIRECTOR OF CREDIT, SALES, William M. Boyer  
AND COLLECTION  
AUDITS AND STATISTICS Cecile Giguere  
FOUNDER Wayne Green

inCider's BBS (bulletin-board system) on line 24 hours: (603) 924-9801



inCider (ISSN #0740-0101) is published monthly by IDG Communications/Peterborough, Inc., 80 Elm Street, Peterborough, NH 03458. Phone: (603) 924-9471. Second-class postage paid at Peterborough, NH, and additional mailing offices. (Canadian second class mail registration number 9590.) Subscription rates in U.S. are \$27.97 for one year, \$43.00 for two years and \$59.00 for three years. In Canada, \$34.97, U.S. funds, one year only. In Mexico, \$32.97—one year only, U.S. funds drawn on a U.S. bank. Nationally distributed by International Circulation Distributors. Foreign subscriptions (surface mail), \$47.97—one year only, U.S. funds drawn on a U.S. bank. Foreign subscriptions (air mail), \$82.97 prepaid, U.S. funds drawn on U.S. bank, one year only. Postmaster: Send address changes to inCider, Subscription Services, P.O. Box 58618, Boulder, CO 80322-8618. (Send Canadian changes of address to: inCider, P.O. Box 1051, Fort Erie, Ontario L2A 5N8.)



# SORRY, SPOT.



Everyone but the family dog will find something to love in The Family Software Library. Each of the three programs is designed for use by adults as well as children.

Individually, the programs have won 11 awards of merit, including Outstanding Software Award and Best Learning Product.

We've also included a special Parent's Guide packed with ideas on how to get the most out of each program.

With a new family computer, the Library is an ideal starter kit. But it's definitely not just for beginners.

Each program is a proven favorite you can use for years. And you'll save \$50 off the combined prices of the three individual programs.

So give our "family" to your family. And give Spot an extra scratch behind the ears.

**Bank Street Writer Plus\*\*** is an easy-to-use word processor that's simple enough for kids, yet powerful enough for adult needs. It includes a 60,000-word spelling corrector and an on-line thesaurus!

**Where in Europe is Carmen Sandiego?™** Playing this thrilling

detective game, children of all ages have a great time learning geography, history and culture. (Includes Rand McNally® Concise Atlas of Europe.)

**Type!®** helps you develop basic keyboard and typing skills. There's even a special set of exercises for younger children.

**See your Brøderbund dealer or call (800) 521-6263**

**Brøderbund®**

IBM PC®/Tandy® and Apple® II versions \$99.95.  
\*Commodore version \$69.95; comes with original Bank Street Writer, which does not include spelling corrector and thesaurus.



# Say Hello to Joshua... America's Newest, Cutest, Friend.

**TWO  
FOR THE  
PRICE OF  
ONE**

## Introducing Joshua's reading machine™ Premium Pack

Embark on an adventure as Joshua the giraffe combines two complete reading packages in his exciting new **PREMIUM PACK**. By including *JOSHUA'S TINKER TALES* and *37 MOTHER GOOSE RHYMES, CHILDREN'S SONGS* and *AESOP'S FABLES*, Joshua offers children twice the learning fun!

The Rhymes, Songs and Fables program contains nine separate levels, creating over 300 combinations of learning activities. The Tinker Tales program entices children to become authors by determining the plot of three unique story outlines.

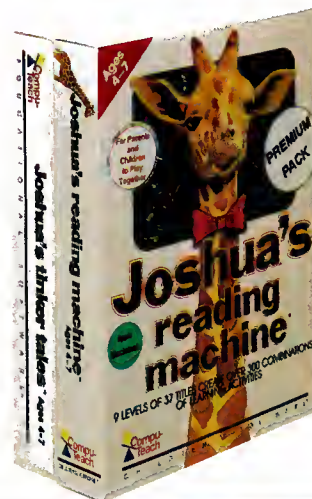
Both programs use colorful graphics, animation and music to increase fun and interest as children learn reading skills that will last a lifetime!

**For Children  
Ages 4-7**

**\$49.95**

- Apple IIGS, IIC +
- Apple II + , IIe, IIC
- IBM & MS-DOS Compatible
- IBM PS2 & Compatibles
- Apple Macintosh
- Tandy

Available at leading  
software dealers  
coast-to-coast.



C H I L D R E N ' S S O F T W A R E™

For information about Compu-Teach software, ask your dealer or call toll-free: 1-800-44-TEACH

Circle 154 on Reader Service Card.



# DECEMBER

1989 • Vol.7 No. 12



p. 53

## ARTICLES

### 53 **Gadgets and Gizmos for Under \$100**

The best to you this holiday season—and it won't cost a fortune, either! If you haven't composed your gift list yet, check out *inCider's* shopper's guide for the ultimate in computer accessories.

### 68 **The Good, the Bad, and the Bow-Wows**

As the ball's about to drop in Times Square, *inCider* begins its countdown of 1989's brightest Apple II achievements (and a few distinct disappointments). Looking ahead to 1990, the II begins the next decade as the dominant machine in the nation's classrooms and a strong contender in the home and office, thanks to a new operating system, innovative productivity programs, and a host of exciting games.

- The Year in Review
- The Year in Productivity
- The Year in Technology
- The Year in Entertainment

### 90 **Life with AppleWorks**

If you always thought AppleWorks was perfect as is, wait 'til you see 3.0's new features! Boot up this deluxe 8-bit classic and get ready to swap that Caddy for a Rolls.



p. 68

## COLUMNS

***inCider's View* • Dan Muse**  
C'Est la Guerre . . . . . 8

**Status Report • Paul Statt**  
High-Rent District . . . . . 24

**AppleWorks in Action • Ruth Witkin**  
Food for Thought 2 . . . . . 94

**Press Room • Cynthia E. Field, Ph.D.**  
Boxing Day . . . . . 100

**Apple IIGS BASICS • Joe Abernathy**  
Inquiring Minds . . . . . 106

**Speaking of Graphics • Roberta Schwartz and Michael Callery**  
Learning the Lingo . . . . . 110

**Learning Curve • David Thornburg**  
Looking Ahead . . . . . 126



p. 90

## DEPARTMENTS

**Letters to the Editor** . . . . . 10  
**What's New**

Hardware, Software, Games, Apple Bits . . . 14

### Apple Clinic

Clear Image: ImageWriter II Overflow, IIC Text Modes, IIC Port 2 Printer, LaserWriter Connection, Quickies . . . . . 26

### Reviews

Teleworks Plus, Monsters & Make-Believe, Kidwriter Golden Edition, Floating Point Engine, Joshua's Reading Machine, At a Glance . . . . . 32

### Game Room

Great Western Shootout, Jack Nicklaus Presents the Major Championship Courses of 1989, Journey, Tip Sheet, Short Takes . . . . . 46

### Hints & Techniques

Investment Summary, Quickies . . . . . 130

### Editors' Choice

Arkanoid II: Revenge of Doh . . . . . 144



## INCIDER'S VIEW

# C'EST LA GUERRE

By DAN MUSE \* EDITOR IN CHIEF

**H**ow was this *Macphile* going to stand in front of a couple thousand Apple II fanatics and not get booed back to France?

I USUALLY ATTEND KEYNOTE ADDRESSES only when I have a hangover and need someplace dark to sit and rest.

Last September at AppleFest/San Francisco, however, I attended the opening-day keynote address for a different reason. I was curious to hear what Jean-Louis Gassée, president of Apple Products, had to say about the Apple II. How was this . . . this . . . *Macphile* going to stand in front of a couple thousand Apple II fanatics and not get booed back to France? Hell, I thought, this guy has probably never even used an Apple II. I was wrong. (Yes, again.)

Gassée seemed at ease demonstrating the Apple IIGS, showing off the improvement in speed offered by System Disk 5.0, as well as the operating system's Close View function (not implemented in the original version of 5.0, but included in the next upgrade), which lets you magnify the screen image, a key feature for the visually impaired.

We were most impressed, though, with Gassée's use of Roger Wagner's HyperStudio. He appeared to know the product and moved from stack to stack without a hitch. Gassée's a pro—a smooth marketer who, if he set his mind to it, could probably convince me that the Apple III still had a future.

From what we've heard, though, Gassée is a fan of HyperStudio even when the microphone's off. The story spreading through AppleFest was that HyperStudio wasn't included originally in the Apple booth as part of its "Choices" theme. Gassée is said to have told the appropriate Apple employee that the package *would* be included; he reportedly asked the person responsible for the original decision, "How is not having this product in our booth going to help me sell computers?"

While we've all heard Apple doublespeak before, there seemed to be at least a thread of honesty in Gassée's cleverly orchestrated ensemble of t-shirt, jeans, and sneakers. Discussing the merits of Pascal versus BASIC for beginning programmers, he showed he's no wimp when it comes to computers. A preference for structured programming rather than loyalty to *la belle France* is probably the reason

he commented, "BASIC is dangerous to the mind. If you want to program, don't learn BASIC." Whether or not you like Pascal, at least Gassée didn't talk about changing the world.

Gassée also noted that Apple would "continue to develop products for the Apple II hardware and software lines. Rumors that we'll discontinue the Apple II in '92 are not correct." Asked about the II/Macintosh connection, he added that we would continue to see common peripherals and better networking. As far as a "bridge" product, though, he said, "It's difficult," that if Apple tries to make a machine that does everything, it "does nothing well."

Gassée didn't promise the moon or even a faster GS, but somehow we got the impression that he knows Apple needs the II—because if the II were no longer an option, some people would buy an MS-DOS machine rather than a Mac. His talk suggests that Apple may be adopting the pragmatic attitude of car makers: General Motors would prefer you buy a Corvette instead of a Chevette, of course, but it's not going to discourage you from the Chevette and force you to buy a Ford Escort.

The highlight of the keynote, however, was a shouting match between Gassée and Bill Mensch, designer of the GS' 65816 microprocessor. Mensch took exception to a comment Gassée made about a lack of available chips for a faster GS: Mensch reached the floor microphone and said he had chips Apple could use. Gassée responded quickly and emotionally that he was surprised to hear Mensch make that claim, considering the number of problems Apple had had dealing with Mensch and Western Design. Mensch tried to keep the argument going, but the ever-alert auditorium sound crew turned off the mike.

Not to be denied an audience with Gassée, Mensch tracked him down off stage, and the two nearly came to blows. I'm sure many jokes about the incident are circulating, but the best line I've heard came from my wife, who said, "You mean you went to a fight and a keynote address broke out?" Yes, and let's hope Gassée continues to think the II is worth fighting for. □



# Let Your Child Play With A Power Tool.



This is one power tool you'll be glad to put in your children's hands. While other kids compete for time on school computers, the LASER 128® enables yours to get ahead at home.

And what an advantage they get. The LASER 128 is Apple®-compatible, so your children gain access to the world's largest library of educational software. Plus thousands of other programs.

The LASER 128 puts you ahead, too. It sells for nearly a third less than an Apple with fewer features.

With savings like that, you can buy a monitor and a printer for a complete setup. And teach your child a

valuable lesson in getting more for your money.

How good of a computer will you get? Let's put it this way. The leading Apple magazine, *InCider*, suggests you "look at today's LASER if you want to see tomorrow's Apple."

Follow their advice. Call 312/540-8911 (in Canada 416/477-2818) for your nearest dealer. Or write LASER Computer, Inc., 550 E. Main Street, Lake Zurich, IL 60047.

Then let your children play with a real power tool. That is, when you're finished using it.

**LASER**  
Laser Computer, Inc./A Video Technology Company



## DISEASE OF THE '80s

I'VE DISCOVERED A NEW AND extremely deadly virus that appears to be terribly contagious and spreads easily. This virus apparently destroys logic and creates mass confusion. There also appear to be two strains. One replicates continually; the weaker strain simply remains infectious.

The one safety net about this deadly virus is that it's easily recognizable. You can spot either strain immediately.

Signs of the more virulent: Someone who's contracted this malaise keeps repeating, "The Apple II is dead and on its way out." You'll also hear comments such as "I know it for a fact," and "I got this information from high up."

Even though this virus is attacking the Apple II world, multiple cases have been discovered in the Macintosh media industry. Many suspect this may also be the virus' origin.

Signs of the weaker strain are much harder to detect. The main problem is that persons contracting it have a tendency to believe statements from the most severe sufferers. Sadly, some of these weaker cases can fester and progress into the more critical stages.

**S. Bradley Martin**  
**R.R. 3**  
**Box 133**  
**Monmouth, IL 61462-9804**

## HOT ROD

IN YOUR EDITORIALS AND LETTERS ("The Price of Power," *inCider's View*, February 1989, p. 8; Letters to the Editor, June 1989, p. 12, and September 1989, p. 12) you stated that AppleWorks GS is destined to be the Porsche of GS integrated programs. I think the GEOS family of products is destined to be the Porsche of 8-bit Apple II programs.

Sure, GEOS needs more speed and works better with lots of memory, but isn't that what everyone's saying about AppleWorks GS? Berkeley Softworks' GEOS products are outstanding—integrated, graphics-based, and powerful. You can purchase and run them separately, spreading your costs over several months.

GEOS products will be the choice programs for all Apple II users. With continued and future upgrades from Berkeley, these programs will steadily improve and push 8-bit computers to the outer limits. If you want the GS or Macintosh look and feel on an Apple IIe or IIc, combined with the integration and desktop-publishing capabilities of AppleWorks GS, GEOS just stepped into the driver's seat of the 8-bit Porsche.

**Michael Smith**  
**74-38 62nd Street**  
**Glendale, NY 11385**

## SATISFACTION GUARANTEED?

I'M BECOMING INCREASINGLY dissatisfied with the support that "Authorized Apple Service Centers" now provide to Apple owners.

I'm a member of the Armed Forces and purchased my computer from a local post exchange at a considerable savings. Since then, I've dealt with several Apple dealers who are reluctant to provide the level of support I'd expect from an authorized service center. On several occasions I've requested help from stores in Fayetteville, North Carolina, and Richmond, Virginia. Each time the dealer asked, "Did you purchase your system from us?" I was even refused the free-update service you mentioned in September 1989 ("Get What You Paid For," p. 64).

Does Apple know what's going on out here? Dealerships are employing "strong-arm sales

tactics," promoting the attitude that if you don't buy from them, they won't provide you with any service.

**Richard Mack**  
**3330 Oakwood Circle**  
**Petersburg, VA 23805**

## TEACHERS' CHOICE

AFTER READING DAN MUSE'S September 1989 editorial ("Those Who Can, Teach," p. 8), I'm heartened to see more and more information on today's technology for education.

As a speech pathologist in the public schools, as well as in private practice, I face the daily challenge of making drills enjoyable. Much of my work involves teaching language concepts and reinforcing them constantly through practice.

Mr. Muse also raises the issue of how and when to use computers. I think that to be prepared for future basic skills, every child should have access to a computer. This machine should augment education, as it's the most novel tool to hit the field. Still, we should exercise caution; the computer should never replace the teacher. I believe there's a consensus among my colleagues that we should use computers in the classroom with a "human touch."

**Cynthia Konow-Linshan, M.A., CCC-SLP**  
**22857 Hilton Head Drive, #192**  
**Diamond Bar, CA 91765**

## EXPLORING CHAOS

LAST WINTER I MADE TWO UNrelated purchases—a IIc Plus and a copy of James Gleick's *Chaos: Making a New Science*. It never occurred to me that these two interests would relate to each other. ►



# Bard's Tale™ Fans Rejoice!

## Dragon Wars™



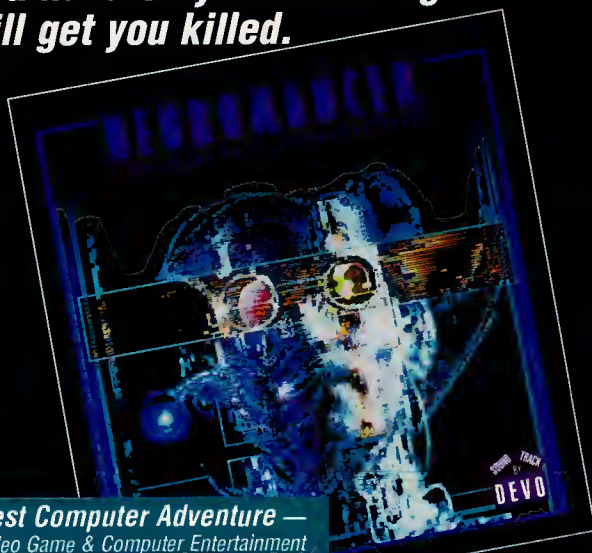
Most of the creatures you meet are as friendly as this guy. He wants to take his spear and shishkabob your whole party.

- Supports characters from Bard's Tale™ I, II & III
- Over 60 monsters and 65 spells
- State-of-the-art animated graphics
- A unique combat system: choose complexity of combat resolution, determine spell strength, select tactics of ranged combat
- An easy-to-use pop-up window system
- Save the game anywhere
- A paragraph book for enhanced storytelling
- Automap keeps track of your every move; no graph paper needed

Actual Apple IIe screen. Available for the Apple IIc/e/ IIGS & C64. Coming soon MS-DOS & Amiga

**In a hundred years hacking  
will get you killed.**

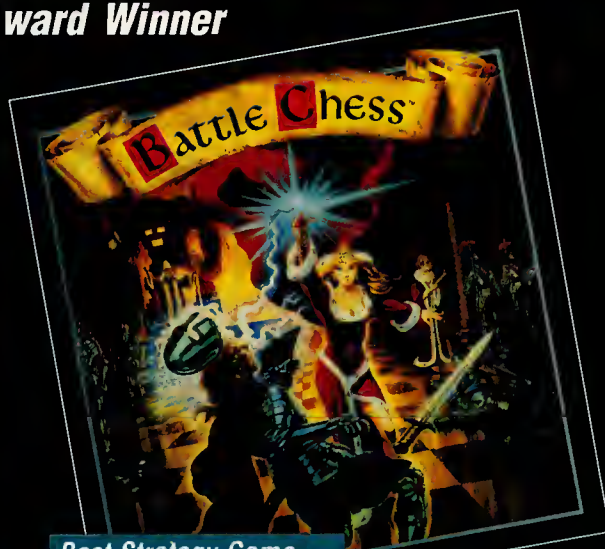
**1989 SPA Graphics  
Award Winner**



**Best Computer Adventure —**  
Video Game & Computer Entertainment

**Named Top Adventure —**  
Computer Gaming World

Available for C64, Amiga,  
MS-DOS, Apple series.  
Cluebook available.



**Best Strategy Game  
of the Year —**  
Amiga User

Available for C64, Amiga,  
MS-DOS, Atari ST, Apple IIGS.

**COMING SOON FROM INTERPLAY: MEAN TIME™**  
A time-travelling epic for the Apple II series & C64.

To order these games direct: 1-800-969-GAME

Neuromancer is a trademark of Cabana Boy Productions. Bard's Tale is a trademark of Electronic Arts. Amiga and Commodore are trademarks of Commodore Business Machines. Battle Chess, Dragon Wars and Mean Time are trademarks of Interplay Productions.

**Interplay™**  
1575 Corporate Drive  
Costa Mesa, CA 92626

# Why Sensible Grammar™ is first in its class.

Now everything you write, from a school report to a business letter, can be stronger and clearer. With *Sensible Grammar*™. A professional proofreading program for Apple II that checks your punctuation, usage, phraseology and more.

*Sensible Grammar* scans your work for potential errors and automatically displays the sentences in which they appear. It explains what's wrong and even suggests corrections. Making changes is easy—a simple keystroke or click of the mouse, and you can do anything from replacing a phrase to rewriting it. And your formatting information remains unaffected.

*Sensible Grammar* compares your text against a library of over 2000 phrases to identify informal, vague, racist, sexist, and other faulty language, plus you can add phrases of your own. It catches embarrassing typographical errors like misused capitalization and repeated words, alerts you to improper punctuation, and more.

*Sensible Grammar* autoloads onto RAM cards, can be used with hard disks and works with most ProDOS word processors. And it costs just \$99.95.

So get *Sensible Grammar*. And write like a pro.

Also available: *Sensible Speller*™, the electronic spelling checker with over 80,000 words from the official Random House dictionary. Works with most ProDOS word processors (\$125).

*Report Card II*™, the grading system that makes compiling students' marks simpler, more accurate, and more efficient. For Apple II and IBM (\$59.95).

*Bookends Extended*™, a specialized database for locating information and printing bibliographies. For Apple II and IBM computers (\$149.95), and for Macintosh computers (\$99.95).

*Sensible Grammar* is also available in a Mac version (\$99.95).



**Sensible Software,® Inc.**

335 East Big Beaver, Suite 207  
Troy, MI 48063  
(313) 528-1950

Circle 240 on Reader Service Card.

## LETTERS TO THE EDITOR

Of course, as I read *Chaos*, several references to home computers (and specifically the Apple II) created an intense interest in exploring this new science.

Now in two successive issues ("Something Strange," *Status Report*, August 1989, p. 20, and "An Ordered World," *Learning Curve*, September 1989, p. 110) you've given us a taste. I hope *inCider* will continue to pursue this fascinating subject!

**Al Canfield**  
6 Fenwood Parkway  
Old Saybrook, CT 06475

## HARD QUESTIONS

I PURCHASED AN 80-MEGABYTE hard disk from Hard Drives International. The drive was created to use with a Macintosh, but because it was a SCSI drive, I thought it should work for my IIGS.

Currently, the hard-disk drive won't recognize GS/OS, while the Finder with AppleWorks GS and other programs won't recognize the hard disk.

I've loaded these programs onto the drive with Copy II Plus, and GS/OS won't load. The Apple SCSI board seems to have the correct number on it, so I don't think that's the problem. Any suggestions?

Also, I have 80 megabytes of memory, but I can access only 64 megabytes at a time, unless I use slot 5 and stop using my 3½-inch disk drive. Is there a way to access the other 16 megabytes of memory?

**Glenn Proudfoot**  
527 West Main Street  
Richmond, KY 40475

Bill Kennedy's advice is to install SCSI-HD using the System Tools disk's Installer program. Then use the Advanced Disk Utilities on the same disk to format and partition more than 64K. —eds.

## SPREADSHEETS REVISITED

I'VE EXPANDED TWO OF RUTH Witkin's AppleWorks spreadsheets that involve interest calculation and loan amortization.

In the amortization schedule ("Borrowed Time," May 1989, p. 68, and June 1989, p. 72), you can now include additional monthly principal payments, beginning in any specified

month, to calculate the additional monthly time. This is handy, for instance, if you want to pay off your house when you retire and need to know how much more you'll have to pay each month.

I also changed the interest-rate calculator ("Cashing In," April 1989, p. 68) from yearly to monthly increments. Here you can make additional regular monthly deposits and figure income-tax liability and its effect if you pay from the account. I've also added a yearly summary at the end and moved the compound-interest-rate calculation formula, so you don't have to recalculate the spreadsheet twice. I included the schedule in three different sheets (10, 20, and 30 years) because of the time it takes to recalculate.

If you're interested in these spreadsheets, send \$10 to cover material and mailing expenses. Be sure to specify your desktop or memory capacity, so that I can send the proper sheets.

**Nell C. Heims**  
2134 Harbor Way  
Fort Lauderdale, FL 33326

## CORRECTION

In the September 1989 feature "Get What You Paid For" (p. 64) an error appears in our explanation of the procedure for identifying GS-incompatible chips in the Apple II 256K Memory Expansion Kit. The letter A indicates an Apple-manufactured chip; to identify those that are incompatible, run the Memory/Test program that comes with AppleWorks GS 1.0 version 2, or get a copy of the Apple IIos Memory Test program from On Three Inc., 123 Groveland Avenue, Riverdale, IL 60546, (312) 447-3924, \$19.95. If you have a RAM problem, notify your dealer.

*INCIDER* WELCOMES READERS' COMMENTS. WE RESERVE THE RIGHT TO EDIT LETTERS FOR CLARITY, STYLE, AND SPACE. PLEASE ADDRESS YOUR CORRESPONDENCE TO LETTERS, *INCIDER*, ELM STREET, PETERBOROUGH, NH 03458.



# Quality Software

Tailor-Made For The Apple IIgs

## Font Factory GS™

Font Factory GS is a "standard IIgs font" editor that can modify or create fonts for use with almost all Apple IIgs-specific programs, including word processing, desktop publishing and drawing programs.

### Why Limit Your Choice?

Font Factory GS is great for automatically changing a font size or for smoothing the ragged edges of a large font. Design custom pictures or symbols. Use the drawing tools with the mouse and see the different font styles as you create each character. It's easy to create custom keyboard characters for math, science, and foreign languages.

Font Factory GS is supplied on a 3.5" disk and requires an Apple IIgs with 768K and one disk drive.

Suggested retail price only \$39.95 (demo \$6).

## Disk Access™

GS owners have wanted a way to manage their files, folders and disks without having to quit their program and return to the "Finder". Now a New Desk Accessory called Disk Access makes these tasks easy to do while using another program!

This New Desk Accessory will save you countless hours of time and frustration!

- ▶ Initialize a disk
- ▶ Create a new folder
- ▶ Delete a file or folder
- ▶ Rename a file/folder/disk
- ▶ Catalog files/folders/disks
- ▶ Copy files in folders and disks
- ▶ Find a hard to find file by name
- ...and many other useful features

\$49.95 (demo \$6). Works with any GS/OS compatible software that supports NDA's.

**Seven Hills**  
Software

2310 Oxford Road, Tallahassee, FL 32304-3930  
(800) 627-3836 or (904) 576-9415  
M-F, 9 a.m. to 5 p.m. EST  
Circle 293 on Reader Service Card.

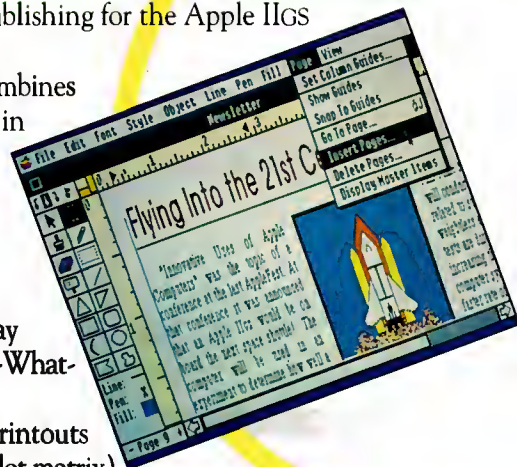
## GraphicWriter III™

Superior Desktop Publishing for the Apple IIgs

GraphicWriter III combines everything you need in one easy-to-use package!

### Some Exciting Features:

- ▶ WYSIWYG display (What-You-See-Is-What-You-Get)
- ▶ Superior quality printouts (LaserWriter and dot matrix)
- ▶ Imports text and graphics from a variety of popular programs
- ▶ Automatically flows text from column to column, page to page
- ▶ Instantly wraps text around graphics



### Included Free:

- ▶ Built-in spelling checker
- ▶ Sample page layouts
- ▶ Hundreds of clip art images
- ▶ GS/OS
- ▶ 30 fonts in a variety of sizes

GraphicWriter III delivers all the power and speed you've wanted from a IIgs-specific program. **And it requires only 512K!**

With its Mac-like interface and innovative design, you will be publishing in less than 30 minutes. You'll enjoy making fliers, newsletters, forms and other documents!

*The Apple IIgs Buyer's Guide* declares: "The serious desktop publisher will find GraphicWriter III a workhorse that can produce complex layouts of extremely high quality."

- Powerful Word Processor ■ Full Color Graphics
- Advanced Page Layout

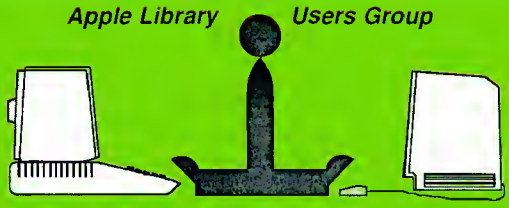
Suggested retail price only \$149.95

1 - 8 0 0 - 6 2 7 - 3 8 3 6

# WHAT'S NEW

By the *inCider* staff

**Apple Library Users Group**



Artwork by Kevin Jutter

Vol. 7, no. 3 July 1989

**Apple Library Users Group Newsletter**

**In This Issue**

Letters to the Editor	Page 4
Macintosh Libraries 2.0*	Page 5
News	Page 6
ALUG Meeting by Eric S. Anderson	Page 10
AppleWorks Bibliography by Janet Vinton-Watts	Page 12
Desktop Publishing by Lyone Bidwell	Page 14
Apple II Video Overlay Card	Page 15
Macintosh Portrait Display Monitor	Page 19
Apple Library of Tomorrow University of Michigan	Page 23
Apple Rags by Rich Malestere	Page 25
Help Found*	Page 27

continued

**From the Editor**

This summer marks the sixth anniversary of the Apple Library Users Group. Looking back over past issues of the *ALUG Newsletter*, it is interesting to see the changes as our group has moved from one where everyone used an Apple II computer to a more diverse group, with Apple II, Apple III, Macintosh and even some diehard Lixas fans! I have heard from some Apple II users who are concerned over what they see as an increased focus on the Mac and a slacking off of articles and news regarding the Apple II. It was also interesting to note at our annual ALUG meeting during the American Library Association that many of the discussion groups organized around topics having to do with the Macintosh. However, this does *not* mean that we are abandoning the Apple II! As I mentioned in the last newsletter, I encourage members to write and tell the rest of us what you are doing with Apple IIs in your libraries. Even though you may have been using the II for ten years, there are still many new computer-using librarians who could benefit from your expertise. So, here's a challenge to our Apple II users - show us your stuff!

**This month we feature the newsletter of the Apple Library Users Group (Apple Computer, 10381 Bandley Drive, M/S 8C, Cupertino, CA 95014, 408-974-2552 or -3258). The front page hardly does the newsletter justice: In addition to what you see ("Apple Rags" praises *inCider* in this issue) you can read a comparison of FrEdBase and AppleWorks, problems and solutions from readers, and a review of Cartooners, plus learn "Is a Computer for the Home Worth It?" ("I don't mind having a computer at home" is the answer to that question.) Most of all, we hope that any librarians who read *inCider* respond at once to the challenge from the newsletter's editor.**

## BEAGLE STYLE

Beagle Bros (San Diego, CA) has acquired the rights to the StyleWare (formerly of Houston, TX) software line—with the obvious exception of GS Works, which Claris (Santa Clara, CA) bought and renamed AppleWorks GS.

The big names among the new products are **BeagleDraw** (\$89.95), formerly TopDraw, and **BeagleWrite** (\$79.95) and **BeagleWrite GS** (\$99.95), formerly MultiScribe. Many users considered TopDraw the best object-oriented graphics program written for the Apple IIGs. MultiScribe was a best-selling graphics word processor in both IIe/IIc and GS versions.

Beagle Bros' **GS Desk Accessories** (\$59.95), formerly DeskWorks, is an interesting product—the collection includes telephone dialer, keyboard

macros, screen preserver, programmable scientific calculator, notepad, and alarm clock, all originally written for StyleWare as programming practice for AppleWorks GS. Clip art and font disks are also available.

Beagle Bros will support older versions of the StyleWare products. The Beagle Bros versions have been improved and updated; upgrading from a StyleWare program costs \$10. As always with Beagle Bros software, the new products are non-copy-protected.

Beagle Bros appears determined never to let good software fade away. For information, contact Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 452-5500, or circle number 350 on the Reader Service card.

—P.S.



StyleWare



## BEAGLE SCHOOL

Beagle Bros has recognized that many of its products are used in schools and has instituted a site-licensing program for its **TimeOut** series of AppleWorks enhancements, and some other popular software, including the

recently acquired **Point-to-Point** telecommunications program.

Beagle offers three types of licenses. A **network license** lets the customer use the Beagle Bros program on a local-area network, and make copies of the

manual. (TimeOut programs are compatible with AppleShare, Corvus, Elan, and other networks.) A **lab license** permits a teacher to make copies of the disk and manual for the students in one classroom. A **site license** allows students, teachers, administrators, and staff to use the program at a single school, but nowhere else.

All Beagle Bros licenses are good for 100 years; after that purchasers must renew the license, but during that time may upgrade each package for only \$10. For prices and further information, contact Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, CA 92121, (619) 452-5500, or circle number 351 on the Reader Service card.

—P.S.



## BUYING FREE SOFTWARE

Why should you pay \$25 for database-management software with a name that means "Free Educational dataBASE?"

Perhaps because *FrEdBase* is one of the most widely known simple databases available at any price—its users state that they prefer it to *AppleWorks*. Or perhaps because *FrEdBase* 2.0 has fixed many of the bugs in earlier versions, and has improved its listing functions to allow for display of as many as 15 records at a time. Perhaps the best reason to pay \$25 for *FrEdBase* is that it's freely copyable: Buy one, and you can make copies for every teacher, every student, every employee, every secretary, and the custodian with a clear conscience.

*FrEdBase* has more charms for the

teacher than its low price, though. Because it's a smaller, less complex program than *AppleWorks*, it works more efficiently on 64K Apple IIs. It can also figure the highest, lowest, and average of a list of numbers automatically—a must for the overworked teacher computing grades. Like *AppleWorks*, *FrEdBase* prints reports in lists or labels on paper, to the screen, or to a text file on disk; unlike *AppleWorks*, *FrEdBase* lets you "flip" through a series of records automatically.



### SOFTWARE

If your budget's got you discouraged about quality software, *FrEdBase* is worth a look. You can find it almost anywhere, but if you buy *FrEdBase* from the International Society for Technology in Education (University of Oregon, 1787 Agate Street, Eugene, OR 97403, 503-686-4414) you'll receive the latest version and 65 pages of documentation. Or just circle number 353 on the Reader Service card for free information. —P.S.



**D**esktop video is this year's buzzword at Apple Computer; and Apple II owners can create video shows on any monitor with **The Presenter**, from Proform Development.

The Presenter runs on any Apple, including the 48K Apple II Plus and Laser compatibles. It displays hi-res graph-

ics, charts, titles, spreadsheet files, or word-processing files—anything you can see on your computer monitor can be presented gloriously on a television set, video monitor, or video projector.

Teachers can use *The Presenter* to create imaginative lessons, and businesspeople can spruce up dry reports. The Presenter includes something called List Management Environment—LIME for short—a BASIC-like programming language that allows for hypermedia effects such as looping, branching, and linking among screens. It's also a quick-and-dirty introduction to the principles of programming.

The Presenter sells for \$44; a classroom package of five disks and teacher's guide is \$94; and a demonstration disk costs only \$5, from Proform Development, 65 Washington Street, Suite 50, Santa Clara, CA 95050, (800) 628-2828, extension 500. Pick number 352 on the Reader Service card for more information. —P.S.

## PUBLISH ◀ IT! 2 AGAIN!

*inCider* readers know Cindy Field's name—she's the author of *Press Room* and a contributing editor in desktop publishing. Since she opened her *Press Room* in April 1988, she's concocted more desktop-publishing projects than we care to count.

But C.E. Field Enterprises cared enough to collect 16 of her best **Publish It! 2** templates into **Business Pack 1** for \$19.95. (Not all these projects appeared in *inCider*.) The 16 files on the *Business Pack 1* disk cover five small-business applications: name badges, business cards, coupons, gift certificates, and postcards. "Only minimal experience with *Publish It! 2* is required,"

according to the author—and if her careful, step-by-step instructions in *inCider* are any indication, that's certainly true.

C.E. Field Enterprises also markets *Publish It! 2* single-project disks (\$10 each) with templates, tutorials, clip art, fonts, and ready-to-use stationery forms, so you can create your own calendars, bumper stickers, badges, and more.

If you own *Publish It! 2* and are serious about your work, send for a free catalog from C.E. Field Enterprises, 60 Border Drive, Wakefield, RI 02879-3802, or circle number 355 on the Reader Service card.

—P.S.



### UPDATES

•Thirdware Computer Products (Miami, FL) has announced the release of **FingerPrint GSI version III**. The greatly enhanced screen-printing utility card sells for \$149; current owners can upgrade for \$35.

•The **William K. Bradford Company** (P.O. Box 1355, Concord, MA 01742) will award as many as ten software grants, each worth \$10,000, to selected schools equipped with an AppleShare/AppleTalk network. The winners will receive software from **D.C. Heath**, as well as William K. Bradford's *Explore-a-Classic*.

•**Springboard Software** (Minneapolis, MN) has dropped prices on some of its early-learning software: *Early Games for Young Children* and *Easy as ABC* are only \$29.95 each; *Piece of Cake Math* and *Fracton Factory* have been reduced to \$12.95.

# Simplify Your Holiday Shopping

## Apple Computers

Apple IIGS 1 Meg	\$ 895
Apple IIc Plus	\$ 499

## Monitors

AppleColor RGB	\$ 465
AppleColor Composite IIe	\$ 339
AppleColor Composite IIc	\$ 312
Apple Monochrome	\$ 135
Magnavox RGB/Composite	\$ 299

## Floppy & Hard Drives

Apple 3.5 Disk Drive	\$ 349
Apple 3.5 UniDisk IIe/IIc	\$ 319
UniDisk 3.5 Controller	\$ 59
Apple 5.25 Disk Drive	\$ 259
Apple 5.25 Controller	\$ 59
Laser 5.25 Disk Drive IIe	\$ 89
Laser 5.25 Disk Drive IIc	\$ 89
CMS 20 Meg w/SCSI	\$ 579
CMS 30 Meg w/SCSI	\$ 659
CMS 43 Meg w/SCSI	\$ 786
CMS 60 Meg w/SCSI	\$ 839



## Vulcan Hard Drives

### by Applied Engineering

Vulcan high-speed internal hard drives for the Apple IIGs, IIe, II+ and II, offer a reliable and affordable way to store large files while speeding boot up time and saving wear on your disk drives. One year warranty.

year warranty	<b>Vulcan HD/20</b>	<b>\$ 529</b>
	<b>Vulcan HD/40</b>	<b>689</b>
	<b>Vulcan HD/100</b>	<b>1299</b>



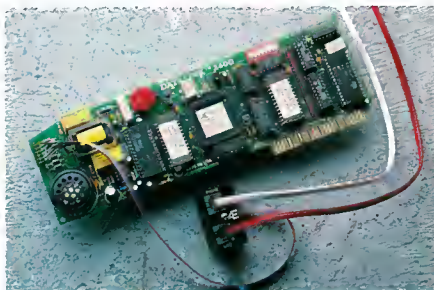
## SystemGate 800K Drive

The SystemGate disk drive provides reliable 800K storage in an extremely compact unit — 1" high x 4" wide x 7.8" deep — 50% smaller than the Apple 3.5 disk drive. It can be daisy chained to other disk drives for convenience. An ideal choice for those who want an additional 800K drive at an affordable price. One year warranty.  
(for Apple IIGs) **CDA Price \$189**

## External Modems

Practical 1200 SA Mini	\$ 85
Practical 2400 SA	\$ 185
Modem Cable	\$ 19

**Order Toll Free 800-526-5313**  
**NJ/Outside US 201-832-9004**



## DataLink Modems

### by Applied Engineering

The Datalink 1200 and 2400 internal modems fit neatly into your Apple II, IIe or IIGs. The Datalink 1200 operates at 300 or 1200 baud. The Datalink 2400 operates at 300, 1200, or 2400 baud. DataLink lets you track the progress of calls either electronically or via an on-board speaker. With built-in error checking you are guaranteed accuracy of data transmission. Includes easy to use communication software, two modular phone jacks, an extra long phone cable, manual and five year warranty.

**DataLink 2400 - \$175**

**DataLink 1200 - \$132**

## Printers

ImageWriter II w/Cable	\$ 459
Olympia NP-30 w/Cable	\$ 289
Epson LX-810	\$ 209

## Printer Interface Cards

Apple Super Serial	\$ 109
Orange Grappler C/MAC/GS	\$ 79
Orange Grappler Plus	\$ 89
Thirdware Fingerprint	
GSI Plus	\$ 95

## Memory Upgrades

We sell factory sealed Applied Engineering Memory Cards complete with 5 year warranty.

GS-RAM ØK	\$ 89
GS-RAM 256K	\$ 129
GS-RAM 512K	\$ 169
GS-RAM 1 Meg	\$ 249
GS-RAM 1.5 Meg	\$ 319
GS-RAM Ultra 256K	\$ 179
GS-RAM Ultra 512K	\$ 209
GS-RAM Ultra 1 Meg	\$ 289
GS-RAM Ultra 2 Meg	\$ 439
GS-RAM Plus 1 Meg	\$ 289
GS-RAM Plus 2 Meg	\$ 439
RamKeeper	\$ 142
RamKeeper Slot Mover	\$ 32
RamWorks III 256K	\$ 159
RamWorks III 512K	\$ 189
RamWorks III 1 Meg	\$ 269
RamFactor 256K	\$ 189
RamFactor 512K	\$ 229
RamFactor 1 Meg	\$ 299
RamCharger Backup	\$ 145
Ram Exp. Clock Option	\$ 49
Apple Memory Card	
256K for IIGs	\$ 129
Applied Ingenuity Extended	
80 Column Card w/64 IIe	\$ 49

## Upgrade your Apple or Applied Engineering Memory Card!

• 256K Chip Set 120ns	\$ 49
• 256K Chip Set for RamPak & GS-Ram Ultra	\$ 59
• 1Mb Chip Set GS-Ram Plus	\$ 129

## PC Transporter

PC Transporter 768K	\$ 389
IIGS Installation Kit	\$ 45
IIe Installation Kit	\$ 39
Single 360K Drive	\$ 219
Dual 360K Drive	\$ 329

## Time & Accelerators

SMT No Slot Clock	\$ 39
-------------------	-------



## Transwarp GS

### by Applied Engineering

The Transwarp GS accelerator allows your IIGs to rip along at 7MHz, compared to its regular 2.8MHz speed. It is completely compatible with all standard hardware and software and is simple to install. Just plug in one connector, then insert Transwarp GS into slot 3 or 4 (the board will not override either slot's function), set the control panel and take off. Switching back to normal speed is as easy as accessing the control panel.

## Transwarp For Apple IIe/II Plus

Speed up your IIe/II Plus from 1 MHz to 3.6 MHz. When used with a II Plus it gives you 128K of memory and ProDos compatibility. Five year warranty.

<b>Transwarp GS</b>	<b>\$292</b>
<b>Transwarp IIe/+</b>	<b>\$175</b>

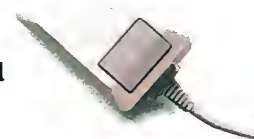
## Power/Surge Protection

Curtis 6 outlet Surge Protector	\$ 29
Applied Heavy Duty	
Power Supply for IIe/II+	\$ 59
Kensington System Saver IIe	\$ 68
Applied Engineering Conserver	
Surge Protector	\$ 92
APC 330 Watt UPS	
Battery Backup	\$ 299

## Desktop Devices

Kensington Turbo Mouse/GS	\$ 109
Mach IV Plus Joystick	\$ 54
Koala Pad Plus Graphics Tab.	\$ 78
Kurta IS/GS Tablet (IIGS)	\$ 269
Apple IIc Mouse	\$ 79
Apple IIe Mouse w/card	\$119

**Order via**  
**Electronic Mall**  
**"Go CDA!"**





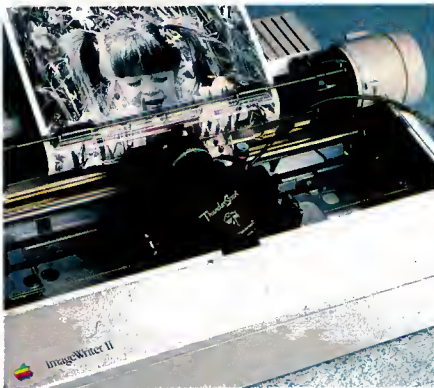
# CDA Delivers Apple Hardware,



## System Saver IIGS

by Kensington

**Extend the life of your computer!** The System Saver IIGS is a cooling fan and surge protector in one compact unit. It draws 17 cubic feet of air per minute through the computer to keep the components free from excessive heat. The built-in surge suppressor protects your computer from damaging electric spikes. Provides four outlets and an 8 foot power cord. The perfect gift for any IIGS owner!  
**CDA Price \$75**



## ThunderScan by Thunderware

ThunderScan is an economical yet powerful scanner for the Apple IIGS, IIC Plus, IIC and IIE. It replaces the ribbon cartridge of ImageWriter I or II and connects to the joystick port so it's easy to install. The scanner zips back and forth, digitizing the image in 16 levels of gray. Its innovative design makes high resolution scanning affordable. ThunderScan images can be saved for use with paint and desktop publishing programs. **ThunderScan \$189**

## ComputerEyes by Digital Vision

ComputerEyes allows you to digitize images from any video source and use them on your Apple II computer for graphic arts, desktop publishing, picture databases, education or entertainment applications. It consists of a single board that plugs into any slot of the IIE or IIGS and system software. 1 year warranty. **ComputerEyes/2 for Apple IIE \$109**  
**ComputerEyes Color for IIGS \$209**

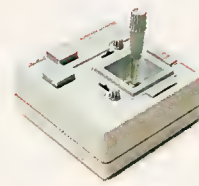


## Holiday Gift Giving Ideas!



### Sony Diskettes

3.5" DSDD (10) \$15  
5.25" DSDD (10) \$8



### CH Joysticks for IIE, IIC+, IIGS

Mach III \$34  
Mach II \$28  
FlightStick \$48



### Kalmar Teakwood Storage Boxes

3.5"-Holds 45 Disks \$18  
5.25"-Holds 50 Disks \$24



### ImageWriter Ribbons

Rainbow Ribbon \$11  
Black Ribbon \$4  
Red, Green or Blue \$5



Mouse Pad \$9



### Surge Protector

Safe-Strip by Curtis \$26

## Sound and Music for Your Apple

### Music Starter Package

This complete music package includes everything needed to get started in computer based music composition, recording and sequencing at an affordable price. *An exciting gift for the MIDI enthusiast.*

Package Includes:

#### •Casio's New MT 640

**Keyboard** features 20 preset sounds, built in drum pads, and a dynamic bass speaker system.

#### •Passport's Master Tracks Jr.

**Software** package features a 64 track sequencer which is easily controlled by conventional tape recorder type functions.

#### •Passport's Serial MIDI

**Interface** features one MIDI in and one out.

### MIDI Interfaces

Apple MIDI (1 in/1 out) \$82  
Opcode Pro Plus (1 in/3 out) \$99  
Passport MIDI (1 in/1 out) \$79

### MIDI Software

Master Tracks Jr (IIGS) \$89  
Master Tracks Pro (IIGS) \$239  
Music Writer-Limited (IIE/IIGS) \$89

### MIDI Keyboards

Casio MT 640 \$229  
Casio PMP 300 \$239

*Call for special holiday prices on Roland, Kawai and other MIDI keyboards. Toll Free 800-526-5313*

### Sound Enhancements

Sonic Blaster (IIGS) \$98  
Phasor (IIE, IIGS) \$128  
Bose Pro Roommate Speakers (set of two) \$279

### MIDI Accessories

Set of 2 MIDI cables \$15  
Universal Keyboard Stand \$39  
"A Guide to Computer Music" (Book) \$17

List - \$580  
**CDA Price - \$379**  
**Save Over \$200**  
Package #8914



**Order via Electronic Mail**  
**"Go CDA!"**

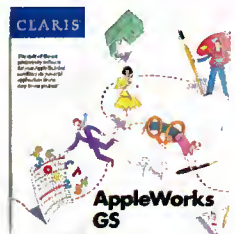




# Software and Accessories!

## BUSINESS SOFTWARE

### AppleWorks GS By Claris



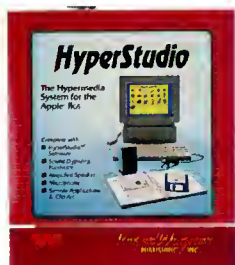
AppleWorks GS delivers six of the most powerful and popular Apple IIGS software applications—word processor, spreadsheet, database, page layout, graphics, and communications—in one easy-to-use program.

Appleworks GS	\$205
Appleworks V3.0 (3.5&5.25)	\$175
<b>BERKELEY SOFTWARES</b>	
GEOS (3.5&5.25)	\$44
<b>MANZANITA</b>	
Businessworks Bundle (3.5&5.25)	\$265
<b>TIMEWORKS</b>	
Publish It! V2.0 (3.5&5.25)	\$79
<b>WORDPERFECT</b>	
Word Perfect V1.1 (3.5&5.25)	\$98
Word Perfect GS V2.1	\$98

## UTILITY SOFTWARE

<b>BEAGLE BROTHERS</b>	
Timeout Desktools (3.5&5.25)	\$29
Timeout Programwriter (3.5&5.25)	\$29
Timeout Quickspell (3.5&5.25)	\$39
Timeout Reportwriter (3.5&5.25)	\$44
Timeout Sidespread (3.5&5.25)	\$29
Timeout Telecom (3.5&5.25)	\$39
Beagle Write (3.5 & 5.25)	\$48
Beagle Write (IIGS)	\$58

### HyperStudio by Rodger Wagner



A great way to integrate text, graphics and sound on your IIGS. Based on the hypermedia concept, HyperStudio provides you with a complete package for instantly creating your own hypermedia applications or editing existing ones.

HyperStudio (for IIGS-requires 1.25Mb)	\$75
Softswitch (for IIGS)	\$38
Macromate (for IIGS)	\$32

## CHECKMATE TECHNOLOGY

Proterm V2.1 (5.25 & 3.5)	\$79
---------------------------	------

## TML SYSTEMS

TML Basic (IIGS)	\$79
TML Pascal (IIGS)	\$79

## ENTERTAINMENT SOFTWARE

<b>ACCOLADE</b>	
Test Drive II (IIGS)	\$27
<b>ACTIVISION</b>	
Music Studio (IIGS)	\$44
<b>BRITANNICA</b>	
Great Western Shoot Out (IIGS)	\$17
<b>CINEMARE</b>	
Defender Of The Crown (IIGS)	\$29



### Print Shop IIGS by Broderbund

Create your own holiday greeting cards, personal letterhead, signs, banners, and more—all in vivid color. Print Shop IIGS includes over 120 unique designs and takes full

advantage of the IIGS high resolution performance. Print Shop IIGS \$37

## DATA EAST

Bad Dudes (5.25)	\$22
<b>EPYX</b>	
California Games (5.25 or IIGS)	\$15
LA Crackdown (5.25)	\$12
Streetsports Football (5.25)	\$12
<b>MICRO REVELATION</b>	
Xenocide (IIGS)	\$32
<b>TAITO</b>	
Arkanoid II (IIGS)	\$22

## HOME/PERSONAL SOFTWARE

<b>ACTIVISION</b>	
Paint, Write, Draw Bundle (IIGS)	\$79
<b>ADDISON WESSELY</b>	
Wordbench (3.5 & 5.25)	\$89



### Reader Rabbit by The Learning Co.

Talking Reader Rabbit helps build your child's early reading and spelling skills. Each word is clearly pronounced to help recognize, remember and spell words. The enhanced graphics will motivate and delight your child's learning process.

Talking Reader Rabbit (IIGS)	\$33
Reader Rabbit (5.25 version)	\$24

## ELECTRONIC ARTS

Deluxe Paint II (IIGS)	\$65
------------------------	------

Mavis Beacon Teaches Typing (5.25)	\$29
------------------------------------	------

<b>EPYX</b>	
-------------	--

Home Video Producer (5.25)	\$34
----------------------------	------

Print Magic (3.5 or 5.25)	\$28
---------------------------	------

<b>INTUIT</b>	
---------------	--

Quicken (3.5 or 5.25)	\$38
-----------------------	------

<b>MECA</b>	
-------------	--

Managing Your Money (3.5&5.25)	\$92
--------------------------------	------

Bank Street Writer Plus (3.5 or 5.25)	\$49
---------------------------------------	------

## EDUCATIONAL SOFTWARE

<b>BRITANNICA</b>	
-------------------	--

Designasaurus (IIGS)	\$28
----------------------	------

Jigsaw (IIGS)	\$24
---------------	------

<b>BRODERBUND</b>	
-------------------	--

Where In The USA Is	
---------------------	--

Carmen SanDiego? (3.5 or 5.25)	\$29
--------------------------------	------

<b>DAVIDSON</b>	
-----------------	--

Talking Math and Me (IIGS)	\$28
----------------------------	------

Talking Reading and Me (IIGS)	\$28
-------------------------------	------

Talking Math Blaster Plus (IIGS)	\$28
----------------------------------	------

<b>LEARNING LAB SOFTWARE</b>	
------------------------------	--

Monsters and Make Believe (5.25)	\$27
----------------------------------	------

Monsters and Make Believe (3.5 & 5.25)	\$30
--	------

<b>WEEKLY READER</b>	
----------------------	--

Stickybear ABC's (5.25)	\$24
-------------------------	------

Stickybear Spellgrabber (5.25)	\$28
--------------------------------	------

Talking Stickybear Opposites (IIGS)	\$28
-------------------------------------	------

<b>APPLE COMPUTER</b>	
-----------------------	--

GS/OS Version 5.0	\$39
-------------------	------



computer sales

Mailorder Exclusively Since 1980

## Why Should You Buy From CDA?

### Wide Selection, Low Prices, Prompt Delivery!

CDA offers Apple computers, complete ready-to-run systems, add-on hardware, software and any accessory you may need—all at an affordable price.

At CDA we offer a wide selection of top name brand items, each carefully selected for quality and reliability.

### 30-Day Satisfaction Guarantee

If you're not 100% satisfied with your purchase simply return the purchased goods within 30 days of receipt for a quick, courteous refund (some items excluded).

### Service and Support

After the 30-day satisfaction period we continue to provide free repair services for an additional 60 days. Our excellent in-house service center and trained technicians provide a speedy turn-around time for your convenience.

## Shipping Information

UPS Ground - add 3% (\$3.50 min)  
UPS 2-day service - add 5% (\$5.50 min)  
Alaska, Hawaii, PR - add 6% (\$6.50 min)  
APO/FPO shipping - add 8% (\$8.50 min)  
Orders over \$2,000 please call for discount rates. Foreign orders ship via DHL, please call or fax for rates and more info. **DHL**

Visa, MasterCard, Discover & Amex Accepted. Personal checks are held 10 days for clearing. No CODs please.

All prices subject to change. Apple, IIGS, & ImageWriter are registered trademarks and UniDisk is a trademark of Apple Computer Inc. Please be advised - CDA is not an authorized Apple dealer, therefore during the 90-day warranty period Apple items must be returned to CDA.

**Hours:** Mon-Fri 8:30am-10pm EST.

Sat. 9am-6pm. Sun. 12pm-5pm

Fax# (201) 832-9740

Cust Service (201) 832-9007 9am-4pm

**US/Canada 800-526-5313**

**NJ/Outside US 201-832-9004**

**CDA Computer Sales**

1 CDA Plaza Rt 513

P.O. Box 533 Califon, NJ 07830

**Yes!** Please send me CDA's Free Catalog

featuring a complete line of Apple Systems, Hardware, Software and Accessories.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

AD #16-12



Circle 8 on Reader Service Card.



# Complete Ready-to-Run Systems

*"We Make It Easy for Santa to Deliver"*

## **CDA's Affordable Apple IIGS System**

*Complete system includes:*

- Apple IIGS 1 Meg CPU w/Keyboard & Mouse
- Magnavox RGB Monitor
- SystemGate 3.5" Disk Drive
- Olympia NP-30 Printer w/cable
- 3.5" Diskettes - Box of 10
- Dust Cover for CPU & Printer
- Computer Paper - Pkg. of 500
- Mouse Pad

List \$2234     **CDA Price \$1699**

**Save Over \$850**     Package #8916

## **Apple IIc Plus Color System**

*Complete system includes:*

- Apple IIc Plus Computer w/built in 3.5" Disk Drive
- Apple Color Composite Monitor
- Olympia NP-30 ImageWriter Compatible Printer
- Printer Interface Cable
- 3.5" Diskettes - Box of 10
- Computer Paper - Pkg. of 500

List \$1599     **CDA Price \$1095**

**Save Over \$500**     Package #8921

## **Apple ImageWriter II Color Printer Package**

*Package includes:*

- ImageWriter II 220 cps Printer
- Extra Black Ribbon
- Rainbow Color Ribbon
- Printer Dust Cover
- Computer Paper - Pkg. of 500

**CDA Price IIc/IIGS \$475  
IIe \$549**

Apple IIGS/IIc Plus - package #8922

Apple IIc - package # 8923

Apple IIe - package # 8924

*(The IIe pkg. includes printer interface card.)*

## **Olympia NP-30 Printer Package**

*Package includes:*

- Olympia NP-30 Printer
- Printer Cable
- Extra Printer Ribbon
- Printer Dust Cover
- Computer Paper - Pkg. of 500

List \$444     **CDA Price \$299**

**Save Over \$140**     Package #8915

## **Apple IIGS Color System**

*Complete system includes:*

- Apple IIGS 1 Meg CPU w/Keyboard & Mouse
- Apple RGB Analog Monitor
- Apple 3.5" & 5.25" Disk Drives
- Apple ImageWriter II 220cps Printer w/cable
- Color Rainbow Ribbon
- 3.5" & 5.25" Diskettes - Box of 10 each
- Dust Cover for CPU & Printer
- Computer Paper - Pkg. of 500
- Mouse Pad

List \$3257

**CDA Price \$2399**

**Save Over \$850**

Package #8920

## **Apple IIGS Power System w/20 Meg Hard Drive**

*Complete system includes:*

- Apple IIGS 1 Meg CPU w/Keyboard & Mouse
- Applied Vulcan 20 Megabyte HD
- Apple RGB Analog Monitor
- Apple 3.5" Disk Drive
- Apple ImageWriter II 220cps Printer w/cable
- Color Rainbow Ribbon
- 3.5" & 5.25" Diskettes - Box of 10 each
- Dust Cover for CPU & Printer
- Computer Paper - Pkg. of 500
- Mouse Pad

List \$4,104

**CDA Price \$2679**

**Save Over \$1400**

Package #8918



**Order Toll Free 800-526-5313**  
**NJ/Outside US 201-832-9004**

# Software Stuffers Under \$10!



## APPLE IIgs 3 1/2" DISKS

### Print Shop™ Holiday Graphics

- ☐ **GS61,62** 200+ holiday color & b/w graphics & borders for Print Shop™ (2 DISK SET) \$18
- ☐ **GS30** Color holiday pictures for Print Shop™ plus customize startup screens... \$9

### Desk Accessories/Fonts

- ☐ **GS2,GS3,GS4** DAs: Picasaver, Notepad, Calendar, melting screen! (3 DISK SET) \$27
- ☐ **GS14,GS71** 82 fonts including Candy Striped and Toyland (2 DISK SET) \$18
- ☐ **GS85** Control Panel NDA: Get to Control Panel from Apple menu, + 20 other DAs... \$9

### Education

- ☐ **NEW GS115** Colorful, animated quizzes from Newton's Apple Education Series: tooth decay, neon lights, tension and compression, dangers of cocaine... \$9

### Mean 18™ Games

- ☐ **GS36,GS37** Play the treacherous fairways of 12 COURSES (REQ. MEAN 18™) (2 DISK SET) \$18
- ☐ **GS102,GS103** Play 12 Oregon golf courses (REQUIRES MEAN 18™) (2 DISK SET) \$18

### Games

- ☐ **GS27** Bounce-It!: IIgs adaptation of the Little BrickOut™ game (SHAREWARE) \$9
- ☐ **GS58** F1 Race: Formula one racing game (SHAREWARE), Mastermind \$9
- ☐ **GS86** Wheel: Vanna's game is now on the IIgs! \$9
- ☐ **NEW GS104** Lotto.GS lottery number generator, Poker and Monte Carlo \$9
- ☐ **NEW GS106** Play Quadomino arcade game & Colossal Caves adventure game \$9

### Graphics/Graphic Utilities

- ☐ **GS7,GS8,GS9** Santa, Enterprise, plus lots more pictures\* (3 DISK SET) \$27
- ☐ **GS45** Borders to frame Xmas cards, stationery, certificates plus color pictures\* \$9
- ☐ **GS63** Cheap Paint—full-featured color painting program (768K REQ.) (SHAREWARE) \$9
- ☐ **GS88** Viewer: View super hi res graphics quickly and easily. Convert Print Shop™ graphics from the Apple II to the IIgs version, *Incider Editor's Choice* \$9

### Music

- ☐ **GS10** "Jingle Bell Rock" + 25 more Xmas songs for use w/Music Construction Set™ \$9
- ☐ **GS64** Rock n Roll Gold: Self-running demo plays 14 songs, *Incider Editor's Choice* \$9

### Utilities

- ☐ **GS87** Iconed: Design, edit, and color your own icons (SHAREWARE) \$9
- ☐ **NEW GS107** MicroEMACS—extremely powerful text editor for advanced users \$9

\* Needs application, i.e. PaintWorks Gold, Deluxe Paint, or GS63 Cheap Paint to print.

- ☐ **ANY 10 DISKS FOR ONLY** \$59.95

## APPLE II 5 1/4" DISKS

### Designing Your Own Greeting Cards is Easy!

10 Print Shop™ disks (req. Print Shop™) w/over 800 pics.

- ☐ 10 Black/White 5 1/4" disks \$39.95

### Business

- ☐ **NEW 846,847,850** Appleworks™ templates: 32 spreadsheets & dbases for home/biz/sports (3 DISK SET) \$15
- ☐ **861** Desktop Publishing program for Publish It!™ \$5
- ☐ **866** Friendly Check—easy checkbook organizer \$5
- ☐ **NEW 869** Mail List, catalog books, print labels \$5

### CAD/Communications

- ☐ **310,311,312** CAD & graphing package (NEED YOUR OWN PRINTING PACKAGE) (3 DISK SET) \$15
- ☐ **854** ZLINK Term. emul. for IIc, IIe, or IIgs with 80-column card & Super Serial Card (SHAREWARE) \$5

### Education

- ☐ **062** Games that make spelling an adventure \$5
- ☐ **194** Genealogy program: Trace your Family Tree \$5
- ☐ **518** History, vocabulary, math, astronomy (SHAREWARE) \$5
- ☐ **NEW 863** Aircraft almanac with full-color hi res graphics \$5
- ☐ **NEW 872** Play Name the States; learn periodic table \$5
- ☐ **NEW 879,880,881,882** Newton's Apple color animated quizzes: tooth decay, neon lights, cocaine dangers, tension and compression (4 DISK SET) \$20

### Games

- ☐ **750,751** Fireground—fight fires and save lives (JOYSTICK REQ.) (2 DISK SET) \$10
- ☐ **NEW 813** Pinball games: Flip-It, Super Blast plus 2 more \$5
- ☐ **814** Monopoly: Apple II version of the popular board game \$5
- ☐ **841** Tomb of Doom: Battle spiders, bats and rats while trapped in dark caverns! \$5
- ☐ **NEW 871** Play North American Stock Exchange or relax with mini golf \$5
- ☐ **NEW 874** Make your own Search-A-Words, prints puzzle and answers \$5
- ☐ **877,878** King Tut's Revenge: find the Pharaoh's crypt (REQ. PADDOLES) (2 DISK SET) \$10

### Passion

- ☐ **190,191** X-Rated graphics and games for adults only (2 DISK SET) \$10

Add \$4 US & Canada (\$14 foreign) shipping/handling for orders. CA orders add sales tax.

If ordering a 6 disk Special, please check 1 box: ☐ Apple II Membership ☐ Apple IIgs Membership

Enclosed \$ \_\_\_\_\_ by ☐ Check ☐ VISA ☐ MC

Card # \_\_\_\_\_ Exp. \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

## SPECIAL!

Any **6** disks  
plus Directory  
1 Yr. Membership  
(IIgs disks may be included)

Only  
**\$39<sup>95</sup>**  
(plus \$4 s/h)

- Includes:
1. Choice of Apple II or IIgs directory.
  2. Quarterly magazine
  3. Special discounts!

**P.D.E.**

2074-C Walsh Ave., #776

Santa Clara, CA 95050

DEALER INQUIRIES INVITED

**TO ORDER: 800-331-8125 In CA 408-496-0624**

**WHAT'S  
NEW**

# IIC HARD DRIVE

Responding to the popular demand for more and more storage capacity, Chinook Technology has announced the release of another 40-mega-



**HARDWARE**

byte hard-disk drive, the **CT40c**. But between your "ho" and "hum," notice that the CT40c plugs directly into the Apple II SmartPort—and that means the CT40c and its sibling, the CT20c, are the only hard drives you can use with a IIc or IIc Plus.

The CT40c is "plug and play" complete, including cabling for attachment to the IIc external disk-drive port, to the GS SmartPort connector, or to a UniDisk 3.5 controller card (IIe); a daisychain port for additional hard or floppy drives;

and preformatting into two 20-mega-byte ProDOS-compatible partitions, with a bootable, ProSel-like (Glen Bredon) program selector and

repartitioning utilities. It's fully compatible with all Apple floppy disk drives, accelerators, and RAM and multicache cards, and you can upgrade it to work with Apple SCSI.

For \$979, the CT40c competes well on a dollar-per-megabyte basis with other Apple-compatible hard drives, and its IIc compatibility is no contest. For more information contact Chinook at 1811 Left-hand Circle, Suite B, Longmont, CO 80501, (303) 678-5544, or circle number 356 on the Reader Service card. —W.K.

■ Quantum Computer Services (Alexandria, VA) and Apple are having words about **AppleLink**.



**APPLE BITS**

Quantum wants more control; Apple doesn't want it called *AppleLink* if Quantum is calling the shots. Not as many Apple owners are using AppleLink as expected; look for Quantum to re-introduce AppleLink as a telecommunications service for MS-DOS, Macintosh, and Apple II computers.

■ Hayes Microcomputer Products (Atlanta, GA)—the company that is to modems

what Kleenex is to tissues—has purchased **Practical Peripherals** (Westlake Village, CA). With the acquisition, the two companies have ended their litigation over the patent for a "modem with improved escape sequence."

■ Stan Roach, vice president of Presentation Tools at **Activision/Mediagenic** (Mountain View, CA) has praised the Apple IIgs in two different Apple press releases. Does this mean we can expect more products from Activision?



# IN THE OFF-SEASON



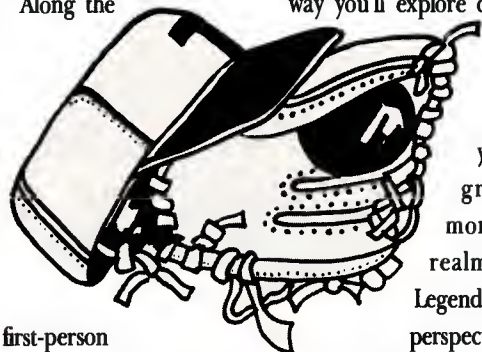
## GAMES

It's deep fantasy adventure or hard-hitting baseball action—take your pick. Epyx continues to expand its collection of Apple II entertainment titles with **The Legend of Blacksilver** and **The Sporting News Baseball**, adding to both its noteworthy lines—the Masters Series and sports simulations.

The **Legend of Blacksilver** takes to you to the fantastical world of Thalen, where the evil Baron Taragas is seizing control of the land. Taragas has kidnapped the king, but—worse than that—he has found traces of the malevolently powerful mineral blacksilver. The Princess needs to find one warrior willing to risk life, limb, and anything else to save the king and the land of Thalen. Any guesses who that might be?

Along the

way you'll explore dungeons up to 12



levels deep; a haunted fortress known as the Labyrinth, guarded by grisly, ghostly demons; and the other realms of Thalen. The **Legend of Blacksilver** uses perspectives and 3-D effects

first-person

to make your heroic quest as realistic as possible.

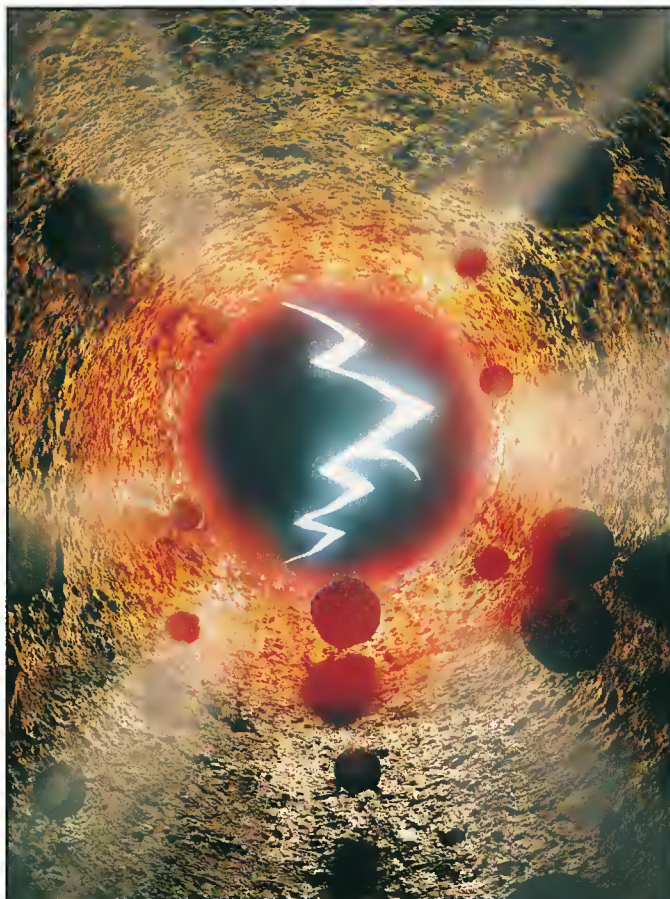
And remember, if you get stuck somewhere in Thalen, you can always consult Epyx's **Masters Collection Hint Book** (\$7.99). Besides helping you get out of sticky situations in **The Legend of Blacksilver**, the **Hint Book** will also lend a hand with **Sub Battle Simulator** and **L.A. Crackdown**.

If sports are more your game, **Sporting News Baseball** takes you out to the diamond for statistical strategy and baseball action. You can choose players from any of the 26 1987 major-league teams, or from a roster of Hall of Fame players. The performance of each individual player is based on actual MLBPA (Major League Baseball Players Association) statistics—hitting percentages, stolen bases, fielding ranges, and earned run averages.

You can play and manage games against the computer or a human opponent in a purely statistical game, where the computer plays out the game, or control the action yourself. **Sporting News Baseball** gives you a split-screen view, with a player's perspective and an overhead. Ballpark sound effects and animation enhance the experience.

Each of these new Epyx titles will retail for \$39.95. For more information contact Epyx at 600 Galveston Drive, Redwood City, CA 94063, (415) 368-3200, or circle number 357 on the Reader Service card.

—L.L.



## Make Sure You Don't See The Light At The End Of The Tunnel.



Or the future  
of the world won't  
be too bright.

You'll be busy swerving past moving barriers, blasting robot guardians, and keeping the walls from caving in on you, not to mention trying to find the doomsday device in time.

Some say you're the best rocket jockey in the galaxy, but are you ready for the **TUNNELS OF ARMAGEDDON™**? Strap your heart in as you warp through an extensive and deadly network of underground tunnels at mind-numbing speed in your quest to save the world. Pick up special items to help you get past the "nastier" obstacles that await you in the 20 increasingly difficult stages of tunnels. And remember to take the right route, because every second counts. Contact your local dealer for details.

Available on Apple II GS Computers.

**TUNNELS  
OF  
ARMAGEDDON**

The Future Is In Your Hands

"Entertainment Software"

**CALIFORNIA**  
*Dreams*™

California Dreams  
780 Montague Expwy., #403  
San Jose, CA 95131  
© 1989 Logical Design Works, Inc.



# EDUCATIONAL



**YOUR SINGLE SOURCE SUPPLIER FOR COMPUTER SOFTWARE • DISKETTES • ACCESSORIES**

USA/CANADA TOLLFREE  
**1-800-624-2926**

## RESOURCES™

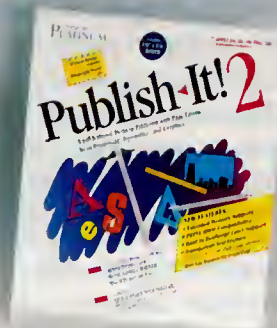
IN ILLINOIS CALL  
**312-884-7040**  
Area code changes to 708 on 11/31/89



**Your Cost**  
**\$39<sup>95</sup>**  
APL  
Iigs Compatible



**NEW** **Your Cost**  
**\$24<sup>95</sup>**  
APL/IBM/Iigs Compatible  
School Version \$31.95  
Lab Pack (5) \$87.95



**Your Cost**  
**\$63<sup>95</sup>**  
APL  
Iigs Compatible  
Lab Pack (5) \$244.95



**Your Cost**  
**\$26<sup>95</sup>** **\$32<sup>95</sup>**  
APL Iigs/IBM/Mac

### LASER SYSTEM

Computer/190A Printer/Monochrome Monitor  
Includes Free Copy II Plus!

**\$695<sup>00</sup>**

Laser EX-add \$55<sup>00</sup>  
Color Monitor-add \$170<sup>00</sup>

Call for lowest component pricing!

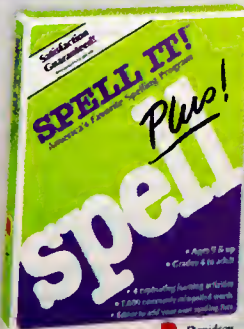


**Your Cost** **\$21<sup>95</sup>** APL/IBM/Mac

**SAVE  
UP TO  
50%  
EVERYDAY**



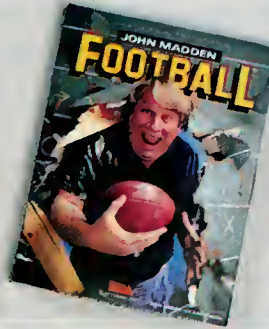
**NEW** **Your Cost**  
**\$29<sup>95</sup>**  
APL



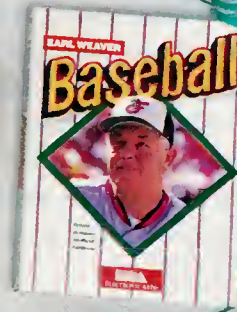
**Your Cost**  
**\$27<sup>95</sup>**  
APL/IBM  
School Version \$41.95



**Your Cost**  
**\$8<sup>95</sup>**  
APL



**Your Cost**  
**\$32<sup>95</sup>**  
APL



**Your Cost**  
**\$27<sup>95</sup>**  
APL

**DON'T SEE IT HERE? WE HAVE IT!**  
**CALL FOR A FREE**  
**120 PAGE CATALOG**

Circle 220 on Reader Service Card.

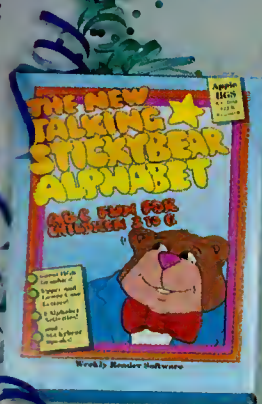
MAIL SCHOOL P.O.'S TO: **EDUCATIONAL RESOURCES**



2360 HASSELL ROAD  
HOFFMAN ESTATES, IL 60195



# Educational Resources Celebrates Service & Selection At Everyday LOW Prices!



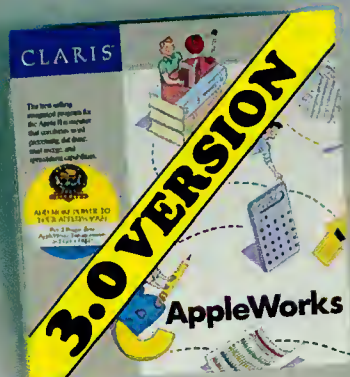
Your Cost  
**\$27<sup>95</sup>**

IIGs/IBM requires echo board  
Lab Pack (5) \$67.95



Your Cost  
**\$25<sup>95</sup>**

APL/IIGs  
P.S. Lovers' Utility Kit \*\$25.95



Your Cost  
**\$169<sup>95</sup> \$194<sup>95</sup>**

APL 128K IIGs 1.25 Meg



Your Cost **NEW \$29<sup>95</sup>**

APL/IIGs/IBM

## LOWEST RIBBON & ACCESSORY PRICES



(Quantities of 6)

Imagewriter I & II*	\$ 2.50
Imagewriter II 4 Color Ribbons.....	5.75
Imagewriter II 4 Color Heat Trans.....	13.95
Panasonic KX-P 1090, 1091, 1092*	3.25
Epson MX/FX/RX 70, 80*	2.50

Epson LX 80/90*	\$ 2.50
Epson MX 100.....	4.00
IBM Pro Printer.....	3.50
Okidata 182/192/193*	2.99

Call If You Don't See It!

\* Available in Most Colors: Red, Green, Blue, Purple & Yellow - Add \$1.00 Each.

## DISKETTES/PAPER

Diskettes - 5 1/4", DS/DD. (multiples of 50).....	.35
Diskettes - 3 1/2", DS/DD. (multiples of 10).....	.99
Color Diskettes (10 Pk., Asst.) 5-1/4".....	6.95
Color Diskettes (10 Pk., Asst.) 3-1/2".....	14.50
Color Paper, Asst., 250 Sheets.....	10.95

## ACCESSORIES

Computer Eyes, B/W IIGs/ILC.....	\$102.95
Computer Eyes, Color, IIGs.....	204.95
Thunderscan.....	189.95
64K/80 Col. Card.....	24.95
Surge Protector (6 Outlet - 6' Cord).....	19.95

System Saver IIGs.....	\$75.95
Disk Notcher.....	3.95
80 Col. Printer Stand.....	19.95
Diskette Storage 60.....	9.95
Mouse Pads.....	4.95

**64K/80 Column Card**  
**\$24<sup>95</sup>**

Allows you to use all the new  
128K programs at a price you  
can't afford to miss!

**HYPER STUDIO**  
**\$94<sup>95</sup>**

IIGs

A complete Hypermedia system making full  
use of the special abilities of your Apple IIGS.

**TUTOR-TECH**  
**\$139<sup>95</sup>**

APL 128K/IIGs compatible  
Gives you the power to develop and  
exchange Apple II stacks.



**NEW** Your Cost  
**\$21<sup>95</sup>**

IIGs



Your Cost  
**\$27<sup>95</sup>**

IIGs  
Scenery Disks I & II  
Car Disks I & II \*\$13.95 ea.



Your Cost  
**\$29<sup>95</sup>**

APL/IBM (5.25" or 3.5")  
Lab Pack (5) \$79.95  
Certificate Collection \$13.95



Your Cost  
**\$17<sup>95</sup>** APL/IBM



**NEW** Your Cost  
**\$29<sup>95</sup>**

APL/IIGs compatible

Checks and School P.O.'s welcome.  
\$50 minimum on charge cards.

Add 5% shipping with a \$3.00 minimum.  
Free shipping over \$300.00 (Continental U.S. only)  
Canada add 10% with a \$5.00 minimum.

**ORDER NOW!**  
**1-800-624-2926**  
**FREE 120 PAGE CATALOG**





## STATTUS REPORT

# HIGH-RENT DISTRICT

By PAUL STATT \* SENIOR EDITOR

**A**pple sells computers at  
the highest price the  
market will bear.  
Wall Street loves it.  
You pay for it.

"SPEAKING OF *INCIDER*," THE USER-GROUP newsletter wants to know, "why does *every* article on the IIGS in this magazine complain about its speed?"

Sorry, but if we didn't moan about the slow speed of the GS once in a while, we'd be forever grumbling about its high price. Dull, but why *do* Apple computers cost so much?

Because Apple computers are so valuable, according to Apple. We build so much into our products, the company says, they're a bargain at any price. You pay a lot because you get a lot.

I'm not convinced. In 1979 I could have bought an Apple I—seven slots and a 6502 microprocessor—for \$666. The Apple IIGS—seven slots and a 65816—costs \$729 today. Compare the price of a personal stereo system, such as the Sony Walkman. It's a third of what it was in 1979.

"We want to do for computers what McDonald's did for hamburgers," says Apple CEO John Sculley. Can he mean that? Does he want to sell computers *cheap*, sell *only* computers, or sell them *fast*?

No, Sculley forgets that what made McDonald's *insanely great* and allowed McDonald's to *change the world* was selling *only* hamburgers *fast and cheap*. The hamburgers taste better than foul and less than delicious—consistently mediocre everywhere. Apple isn't famous for selling computers just good enough at prices just low enough for everybody.

Apple's been building IIs for ten years. Memory chips are cheaper now; the Apple II factories are built; the author of the firmware has been paid. The chip count is smaller than it was in 1979. The mortgage is up on the Apple II. Why are Apple II customers still forking over such high rent?

Henry Ford, still remembered in Europe and the Soviet Union as the founder of Fordism, didn't invent the mass production of automobiles, although he sure took advantage of it. His radical notion of industry was that every *worker* could also be a *consumer*.

Combining high wages and low prices, Ford eventually put a car in every American garage. Apple pays pretty well, I hear, and sells its computers

cheap to its employees. Are the computers too pricey for Apple employees? That's no way to put a computer on every desk. That's only half a notion.

Apple still has the idea it's a "counterculture" company—an alternative to the Peace Corps for hackers eager to save the world. It isn't. Apple sells computers at the highest price the market will bear. That's capitalism. Wall Street loves it. You pay for it.

Apple could truly build a computer for the rest of us, and could make lots of money selling lots of computers, but that kind of logic is too simple for today's business. A business needs expensive stock, not good products. Apple "keeps its margins high." I'll translate for those who flunked economics: Apple sells computers for much more than it costs to build them. That makes Apple stock desirable. It doesn't make Apple computers innovative, interesting, or cheap.

I think Apple has a problem. Call it a vision problem if you will, but don't sign up its employees for a workshop, commission a video, or order new t-shirts. A computer for the rest of us is a fine idea. But the Apple II costs more than many people, schools, nonprofit organizations, and even businesses can afford.

Apple recently sold "10,000-80,000 Macintosh II-based A/UX workstations" to the Department of Defense, according to Apple's less-than-precise press release. "The total value of the contract, which includes computers, service, support and software, is \$164 million." The department that once paid \$99 for a hammer has, by my quick calculation, just paid \$16,400 for a computer that lists for \$9799. That's a lot of software and support. A \$16,000 military computer is hardly a computer for the rest of us. It's hardly a personal computer.

Apple started with a vision—personal computing—that looks more like a hallucination today.

A man believes he's the emperor Napoleon. I convince him he's not; now he pretends to be Kaiser Wilhelm. Have I helped him? A new vision is a new suit of clothes for the emperor. Apple needs to look up, raise its eyes, and drop its prices. □





# The Power and the Glory

Vulcan internal hard drives are not only the fastest hard drives on the market, they're the most powerful. By a long shot. Vulcan's built-in power supply was custom-designed by Applied Engineering to provide the power other systems (and your unenhanced Apple II) lack.

## Sheer, raw power

A typically enhanced Apple II system (with 3 or 4 expansion cards) needs a heavy duty power supply. Vulcan's power supply is rated at more than 70 watts. *Double* the capacity of other hard drives and double the native capacity of your Apple. The power supply components are heatsinked to the aluminum case, and to harness all that power, Vulcan incorporates an ultra-quiet, flush mounted cooling fan.

## Unmatched speed

For speed, Vulcan incorporates an ultra-fast 16-bit data bus controller, not the less expensive 8-bit others use. The result? You'll load AppleWorks GS in less than 14 seconds. Boot GS/OS into the finder in 18 seconds. Verify disks at the astounding rate of more than 180 blocks per second. Vulcan wins any speed test.

## Upgradeable Flexibility

Choose a Vulcan from 20, 40, 100 — all the way to a staggering 200 MEGs. Vulcan is upgradeable, so it grows as your needs grow. And we don't mean by daisy-chaining additional hard drives. When you upgrade Vulcan, you pop one out and *replace* it with another.

Use virtually any operating system: GS/OS (v5.0 is included), ProDOS 8, DOS 3.3, CP/AM or Pascal 1.3. Vulcan supports them all with sixteen partitions (access four simultaneously). Choose slot 1, 2, 4, 5, 6 or 7. Even pseudo-slot to slot 7 from elsewhere. Vulcan works on 110/220 VAC, even European 115/230 VAC at 50-60 Hz.

## Easy to use

Vulcan simply pops in, replacing the Apple power supply under your computer's hood. Our built-in firmware automatically installs itself as a Desk Accessory for write protection and partitioning. The software we provide lets you easily park heads, back up and reformat.

Vulcan gives your Apple IIGs, IIe, II+ or II an upgradeable combination of useable speed, safe

power (it's FCC certified) and practically unlimited size. It's a powerful and glorious advance into the Apple II future.

## Order today!

To order or for more information, see your local dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

<b>Vulcan 20 MEG</b> .....	<b>\$699</b>
<b>Vulcan 40 MEG</b> .....	<b>\$899</b>
<b>Vulcan 100 MEG</b> .....	<b>\$1795</b>
<b>Vulcan 120-200 MEG</b> .....	<b>CALL</b>

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.



# CLEAR IMAGE

The GS is supposed to be Super Serial Card compatible, but that's not completely true.  
So, give your GS the CE command.

By **WILLIAM P. KENNEDY, Ph.D.**

## IMAGEWRITER II OVERFLOW

**O**UR SCHOOL'S IMAGEWRITER II, connected to a GS, is driving us crazy. LISTed BASIC program lines longer than 80 characters print the excess on top of the beginning of the line. So do Applesoft PRINTed messages. When a similar problem occurred with a IIe, we used the command `PRINT CHR$(9);"80N": PRINT CHR$(9);"C"`. When the ImageWriter reached 80 characters, it would invoke a carriage return and drop down a line. Is there a similar command for the GS? We can't find one.

**Frank Walter  
Syracuse, NY**

Frank, use the command `PRINT CHR$(9);"CE"` with the GS. It isn't your ImageWriter, but the serial-printer firmware (printer software in ROM) that's creating the problem. The GS is supposed to be Super Serial Card (SSC) compatible; the difference between "C" and "CE" shows that's not completely true. (I'm assuming you had an SSC installed in the IIe and connected to the ImageWriter.)

The "80N" command you used is correct and selects a printed line width of 80 characters. You can also preset that value in your Control Panel printer-port line-length option, so you needn't invoke the command each time you start up your GS.

If the number of characters exceeds 80, however—

or whatever length you set—the firmware still won't "format" the line until told to do so with a second command: "C" for the IIe equipped with an SSC, or "CE" for the printer port on the GS. Only when the overflow occurs will the firmware insert the proper codes to start a new line.

## IIc TEXT MODES

**H**OW CAN I GO BACK AND forth between 40- and 80-column text mode on my IIc? PR#3 works fine to enable 80-column mode, but PR#0 doesn't reset it to 40 columns.

**Joseph Gordon  
Bradenton, FL**

Now that is a simple question, Joseph. But there are several answers—several ways to switch between 40- and 80-column text modes on your IIc. Some are easy; others are esoteric, cumbersome, or both. I'll stick to the simple ones you're probably most interested in.

When in BASIC command or "direct" mode (program not "RUNning," BASIC bracket prompt displayed on screen) or in monitor mode (asterisk prompt displayed), simply press Escape once, then type 4 to enable the 40-column text screen, or 8 to enable the 80-column.

Note that when you switch from 40- to 80-column mode, anything appearing on screen shifts automatically into the left-hand 40 columns, and the

right side will be clear. But when going from 80 to 40 columns, the half that was on the left side will shift to fill the screen, and the text on the right half will disappear. You can't retrieve that lost half easily.

Similarly, the command `PRINT CHR$(17)` enables 40-column text mode, and `PRINT CHR$(18)` enables 80-column. Although you can use them directly, you'd use them most often "indirectly" within a RUNning Applesoft BASIC program.

To erase the screen after enabling either mode, use the Applesoft HOME command directly or indirectly. `CALL -936` performs the same function. From the monitor, use `FC58G` or `JSR $FC58` from a machine-language program. The keypress sequence `Esc-@` (Escape-shift 2) also clears the screen.

As you mentioned in your letter, the PR#3 command (use `PRINT CHR$(4);"PR#3"` as the indirect command) simultaneously enables and erases the 80-column text screen. Unfortunately, no single command will do the same for 40 columns.

But the PR#0 command doesn't work like PR#3 for good reason: Applesoft generally uses the PR# slot command to redirect your Apple's PRINT output to the firmware (software in ROM) that exists on the interface card installed in the specified expansion slot.

For example, Applesoft PRINTs messages on a printer installed in slot 1 or a modem in slot 2 after invoking the proper PR# command. PR#0 thereby is reserved to redirect that PRINT output back to the screen; nothing more. You can easily see that programs could get quite messy if you wanted to print messages on screen while printing text on a printer, and the PR#0 command kept clearing the screen.

## IIc PORT 2 PRINTER

**C**AN I USE SERIAL MODEM PORT 2 in the IIc Plus to add a second printer? I currently have an ImageWriter II connected to printer port 1 and want to connect a daisywheel printer, as ►



# ZIMCO

INTERNATIONAL, INC.

85-39 213 Street, Queens Village, NY 11427

## Computers:

Apple IIC+	\$520
Apple IIE	\$638
Apple IIGS	\$885
Mac Plus	\$1,385
Mac SE CPU	\$2,209
Mac SE w/20 MB	\$2,671
Mac II, IIX, IICx	Call
Laser 128	\$365
Laser 128 EX	\$423
Laser 128 EX2 w/ S.2S	\$490
Laser 128 EX2 w/ S.3	\$490

## Disk Drives

Apple 3.5	\$330
Apple Unidisk 3.5	\$330
Apple 3.5" Mac	\$330
Apple PC 3.5" Drive	\$307
Apple Hard Disk 20SC	\$692
Apple Hard Disk 40SC	\$999
Apple Hard Disk 80SC	\$1,385
Apple Drive Controller Card	\$59
Apple 3.5" Drive Cont. Card	\$59
Centra Point 3.5" Drive	\$187
Universal Controller Card	\$69
Applied Engineering 5.25" Drive	\$116
Drive Controller Card	\$52
Vulcan 20 Meg Hard	\$464
Vulcan 40 Meg Hard	\$607
Vulcan 100 Meg Hard	\$1,283
CMS S020-A23	\$650
S043-A25	\$815
Rodime 20 Plus ext. IIE/IIGS	\$665
60 Plus ext. IIE/IIGS	\$999
60 Plus ext. IIE/IIGS	\$1,200

## Hardware

Genuine Apple IIC Mouse	\$79
IIE Mouse	\$119
IIE Enhancement kit	\$59
IIE Numeric Keypad	\$55
SCSI Card	\$109
Super Serial Card	\$99
Additional Hardware 16K Ram Card (2+)	\$35
Ext. 80 Col. Card	\$29
Fan & Surge Prot.	\$29
Kensington System Saver	\$62
Kola Pad Plus	\$86
SMT Par. Printer Card/Cable	\$59
SMT Super Serial Card	\$59
Thunder Scan	\$179
Street Elec. Cricket IIC	\$125
Street Elec. Echo IIE	\$122
Orange Micro Hotlink	\$58
Prograpper IIE/IIGS	\$84
Pro-Grappler IIE/IIC w/ buffer	\$79
Serial Grappler Plus	\$115
Serial Grappler Plus	\$65

## Monitors

Apple Color Comp.	\$310
Apple Monochrome	\$125
Apple RGB Analog GS	\$461
Magnavox Amber/Green	\$115
Magnavox RGB 14"	\$269

## Printers

Apple ImageWriter II	\$465
Apple ImageWriter LD	\$1,079
Apple Laserwriter IINT	\$3,855
Apple Laserwriter IISC	\$2,200
Apple Laserwriter IINTX	\$5,536
Epson LX-810	\$195
FX-850	\$350
FX-1050	\$510
LD-510	\$337
LD-850	\$542
Ex-800	\$438
Panasonic KXP-1180	\$181
KXP-1191	\$219
KXP-1124	\$349
KXP-1592	\$385
KXP-1595	\$435
KXP-1524	\$535
Star NX-1000	\$185
NX-1000 Rainbow	\$235

## Modems

Apple Personal Modem	\$221
Applied Engineering DataLink 1200	\$139
DataLink 2400	\$179
Hayes SmartModem 1200	\$325
SmartModem 2400	\$467

## Joysticks

Kraft 3-but.	\$30
CH Mach III	\$38
CH Flightstick	\$48

## II+, IIE, IIGS

PC Transporter:	
PCT w/768K (640K I8M)	\$357
PCT Installation Kit (IIGS)	\$35
PCT Installation Kit II+, IIE	\$28
PCT 128K ZIP memory chips	\$57
PCT 8087-2 Math Co-roc.	\$185
TrensDrive:	
TO 360K Single-Drive	\$185
TO 360K Dual-Drive	\$278
TO 360K additional 1/2-hd drive	\$97
I8M-style Keyboard w/ Cable	\$99
I8M-style Keyboard w/ Cable alone	\$24
Digital RGB Adapter	\$17
ColorSwitch analog RGB adapter	\$31
Mastering (MS)DOS Guide	\$13
RamFactor DK	\$135
RamFactor 256K	\$185
RamFactor 512K	\$235
RamFactor 1 Mg.	\$335
RamFactor Expander Kit	\$21
RamFactor Expander 0 Mg.	\$142
RamFactor Expander 1 Mg.	\$321
RamFactor Expander 2 Mg.	\$500
RamFactor Expander 3 Mg.	\$679
RamFactor Expander 4 Mg.	\$851
RamCharger (battery backup for RamFactor)	\$128

GS-Ram 1 Mg.	\$278
GS-Ram 1.5 Mg.	\$378
GS-Ram Plus 0 Mg.	\$121
GS-Ram Plus 1 Mg.	\$300
GS-Ram Plus 2 Mg.	\$478
GS-Ram Plus 3 Mg.	\$657
GS-Ram Plus 4 Mg.	\$836
GS-Ram Plus 5 Mg.	\$1,015
GS-Ram Plus 6 Mg.	\$1,193
GS-Ram Ultra 0K	\$121
GS-Ram Ultra 256K	\$164
GS-Ram Ultra 512K	\$207
GS-Ram Ultra 1 Mg.	\$292
GS-Ram Ultra 2 Mg.	\$464
GS-Ram Ultra 4 Mg.	\$807
GS-Ram Ultra 2 Mg. Exp.	
w/ 1 Mg.	\$428
w/ 2 Mg.	\$607
RamKeeper (battery b/up for IIGS mem. cds)	\$135
Slot-Mover for RamKeeper	\$28
Extra Gel/Cell for RamKeeper	\$17
Sonic Blaster	\$92
TransWarp Accelerator GS	\$285
RamWorks basic OK	\$85
RamWorks basic 64K	\$107
RamWorks basic 256K	\$135
RamWorks basic 512K	\$185
RamWorks III OK	\$99
RamWorks III 64K	\$121
RamWorks III 256K	\$149
RamWorks III 512K	\$199

RamCharger cable (powers 2 RamFactor's)	\$17
DataLink 1200 int. modem w/soft.	\$128
DataLink 2400 int. modem w/soft.	\$171
Parallel Pro	\$71
Plug-in options for Parallel Pro:	
Buffer Pro 32K	\$78
Buffer Pro 128K	\$114
Buffer Pro 256K	\$149
Serial Pro (ser. int & clock)	\$99
Timemaster II H.D.	\$71
BSR op for Timemaster II H.D.	\$21
BSR Command Console	\$28
Z-80 Plus	\$107
Phasor	\$121
A/D + D/A Card	\$142
16 Channel, 12 Bit A/D	\$199
Signal Conditioner	\$56
I/O 32 Card	\$64
Vulcan 20 Mg. Hard Drive	\$464
Vulcan 40 Mg. Hard Drive	\$607
Vulcan 100 Mg. Hard Drive	\$1,283

IIGS GS-Ram DK	\$78
GS-Ram 256K	\$128
GS-Ram 512K	\$178

OClock (Ram Ex. clock op.)	\$42
II + Viewmaster 80	\$114
Pocket Rocket 16K RAM Card	\$71
TransWarp Accelerator (doubles as 16K card)	\$121
Lowercase RDM chip	\$17
Macintosh	\$335

## Chips, Drives, Etc.

256K RAM Chips 150ns set/8	\$55
256K RAM Chips 120 ns set/8	\$60
1 Meg RAM Chips (Set of 8)	\$197
128K ZIP memory chips (for PC Transporter)	\$57
65C802 Chip (II+, IIE, and IIC)	\$49
256K x 8 RAM SIP Pack	\$164
Lowercase RDM chip (II+)	\$17
S 1/4" 1/2 ht. floppy drive	\$107
Disk Controller Card (II, II+, IIE, and IIGS)	\$49
IIC External Drive Cable	\$14
High Output Power Supply (II, II+, and IIE)	\$56

## IIE/IIC Software

Accolade Test Drive	\$21
Addison-Wesley Shadows Of Mordor	\$25

## FREE SHIPPING ON ALL ORDERS\*

Bank Street Writer 64K	\$42
Bank Street Writer Plus	\$48
Chopflifer w/ David's Midnight	\$39
Oazle Draw	\$36
Family Software Library	\$60
On Balance	\$36
Print Shop:	
PS Companion	\$24
PS Graphics Lib. Disk One	\$15
PS Graphics Lib. Disk Three	\$15
PS Graphics Lib. Disk Two	\$15
PS Graphics Lib. Holiday Ed.	\$15
PS Bundle w/Graphics Lib.	\$30
Science Tool Kit: Earthquake	\$24
Sensei Geometry	\$48
The Dark Heart Of Ukruul	\$30
Times Of Lore	\$24
Ultima V	\$36
Ultima Trilogy	\$36
VCR Companion	\$30
Carman San Diego...	
Where in Europe?	\$27
Where in the World?	\$24
Wings of Fury	\$21
Claris Appleworks 2.1	\$177
Championship Wrestling	\$13
Death Sword	\$19
Oestroyer	\$13
Print Magic	\$30
Street Sports Football	\$13
The Games: Summer Edition	\$30
The Games: Winter Edition	\$30
Funk Software Sideways Pro Dos 2.0	\$42
Learn Lab/Pelican Oinosaur Days	\$23
Monsters And Make Believe	\$28
Learning Company Children's Writing/Publishing	\$32
Math Rabbit	\$36
Math Rabbit Early Math Skills	\$21
Reader Rabbit	\$24
Think Quick	\$27
Writer Rabbit Early Writing	\$27
Mediabatic Battle Tech	\$32
Championship Baseball	\$9
Championship Basketball	\$27
Crossbow	\$25
Rampage	\$21
Shogun	\$30

The Last Ninja	\$21
Microprose F-15 Strike Eagle	\$25
Pirates	\$29
Mindscape Mastertyping	\$24
Crossword Magic	\$30
Mastertyping Bundle	\$24
PaperPro Monogram	\$24
Dollars & Sense 128K	\$72
Sensible Software Sensible Grammar	\$53
Share Date Card Sharks	\$7
Concentration	\$7
Family Feud	\$7
Jeopardy	\$7
Jeopardy II	\$7
Wheel Of Fortune	\$7
Wheel Of Fortune II	\$8
Wheel/Jeopardy Double Pak	\$14
Siera On-Line Gold Rush	\$24
King's Duest	\$30
King's Duest III	\$30
King's Duest IV	\$30
Leisure Suit Larry	\$24
Mother Goose	\$18
Thxtr	\$21

Simon & Schuster Chem Lab	\$13
Star Trek First contact	\$18
Typing Tutor IV	\$24
Webster's Spelling Checker	\$36
Sir-Tech Software Clan Practical Accountant	\$36
Wizardry I	\$30
Wizardry V	\$32
Software Publishing PFS: File/Report Bundle	\$63
PFS: Graph	\$63
PFS: Write w/Spellcheck	\$63
Workmates	\$114
Springboard Software Atlas Explorer	\$28
Certificate Maker	\$22
Certificate Lib.	\$17
Family Matters	\$28
Fraction Factory	\$18
Springboard Publisher Fonts	\$18
The Newsroom	\$21
Styleware Desk Accessories	\$18
Sublogic Corp. Jet w/ Japan Disk	\$24
Word Perfect	\$92

## SMART SHOPPERS:

Remember that the hottest new hardware & software is usually on Christmas backorder by Thanksgiving! Right now is the right time to place your holiday orders. And check out our specials on UNDER \$10 software items! If you don't see the products you want in our ads, call us toll-free to ask for them!

Call 1-800-227-6647  
Inquires, Tech Support & New York :  
Call 1-718-479-7888

NO EXTRA CHARGE  
MasterCard/VISA/Discover

\*Free shipping offer valid in continental US only. Add handling & insurance to all orders. We carry everything for your Apples, MAC's or IBM's. We cannot guarantee weather or prices; both tend to change. Call for current prices & sale flyer. Minimum restocking fee 20% for non-defective merchandise. (Incident A+ 11 89)



well. If I can't connect it to port 2, can you suggest a hookup, so that I don't have to plug and unplug the connectors constantly?

**Ronald Newhouse**  
Itasca, TX

Electrically, port 2 is identical to port 1 in the Apple IIc and IIc Plus, Ron. And the connections are simple: Use the same cabling—as if you were plugging that second printer into printer port 1.

The serial firmware (ROM software) that manages those ports, however, is factory-preset to operate with a printer in port 1 and a modem in port 2.

Some applications—the latest version of AppleWorks (3.0), for example—reset port 2's configuration automatically to suit a printer. Most don't, so you need to reset the port manually each time you start up your IIc Plus.

If your application(s) won't change the port 2 settings, I recommend you use the Apple II System Disk (version 3.1) that came with your IIc. The Set Serial Ports option from the System Utilities' Other Options menu lets you configure port 2 for a printer.

Common settings for a daisywheel are 1200 baud, 8 data bits, 1 stop, no parity, with line feed. XON/XOFF protocol also might be required. Then choose

to save those changes on disk. Thereafter, boot that System Disk at the beginning of each session on the IIc, and launch your application(s) that will use the serial port 2 with a printer.

If you need to customize some of your own programs, get a copy of the Apple IIc Technical Reference Manual (Addison-Wesley, Reading, MA) and read chapter 8, which covers serial I/O port 2. Or refer to Vincent O'Connor's excellent contribution to Hints/Techniques, "Setting IIc Ports" (December 1987, p. 164).

# The Sensational Lasers Apple IIe/IIc Compatible

ONLY **\$395** Includes 10 free software packages!

**New!** Now Includes  
**COPY II PLUS®**



The Laser 128® features full Apple® II compatibility with an internal disk drive, serial, parallel, modem, and mouse ports. When you're ready to expand your system, there's an external drive port and expansion slot. The Laser 128 even includes 10 free software packages! Take advantage of this exceptional value today..... **\$395**

**Super High Speed Option!**  
only **\$459**

The LASER 128EX has all the features of the LASER 128, plus a triple speed processor and memory expansion to 1MB ..... \$459.00

The LASER 128EX/2 has all the features of the LASER 128EX, plus MIDI, Clock and Daisy Chain Drive Controller ..... \$549.00

## DISK DRIVES

- 5.25 LASER/Apple IIc ..... \$109.00
- 5.25 Apple IIe ..... \$109.00
- 3.50 Apple 800K ..... \$179.00
- 5.25 LASER Daisy Chain ..... **New!** \$119.00
- 3.50 LASER Daisy Chain ..... **New!** \$189.00

**Save Money by Buying  
a Complete Package!**

THE STAR a LASER 128 Computer with 12" Monochrome Monitor and the LASER 145E Printer ..... \$665.00

THE SUPERSTAR a LASER 128 Computer with 14" RGB Color Monitor and the LASER 145E Printer ..... \$849.00

## ACCESSORIES

- 12" Monochrome Monitor ..... \$ 89.00
- 14" RGB Color Monitor ..... \$249.00
- LASER 190E Printer ..... \$249.00
- LASER 145E Printer ..... **New!** \$209.00
- Mouse ..... \$ 59.00
- Joystick (3) Button ..... \$ 29.00
- 1200/2400 Baud Modem Auto ..... \$149.00

**U.S.A. MICRO**

**YOUR DIRECT SOURCE FOR APPLE  
AND IBM COMPATIBLE COMPUTERS**

2888 Bluff Street, Suite 257 • Boulder, CO. 80301  
Add 3% Shipping • Colorado Residents Add 3% Tax

**Phone Orders: 1-800-654-5426**

8-5 Mountain Time • No Surcharge on Visa or MasterCard Orders!  
Customer Service: 1-800-537-8596 • In Colorado: (303) 938-9089

**Your satisfaction is our guarantee!**

Laser 128 is a registered trademark of Video Technology Computers, Inc. Apple, Apple IIe, Apple IIc, and ImageWriter are registered trademarks of Apple Computer, Inc.

## LASERWRITER CONNECTION

**O**UR SCHOOL DISTRICT JUST purchased a LaserWriter NTX, which we've connected to two GSeS using AppleTalk. How can we get AppleWorks 2.1 to print to that LaserWriter? We've used AppleWorks GS to print documents on the LaserWriter, but "importing" all those files is a pain.

**Joseph Karwoski**  
Johnstown, PA

Printing your AppleWorks documents on a LaserWriter, Joseph, requires some setup time and effort. And there are two methods to consider. You can use one procedure with a IIe equipped with an AppleTalk Card, as well; the other involves using the new GS operating system (GS/OS) software, version 5.0. I prefer the latter method, so I'll describe it in depth. GS/OS is easier to use and more versatile. Get a copy for \$49.95 from your dealer, or perhaps free, depending on the goodwill of your dealer or a friend—particularly if you supply fresh disks.

First make backup copies of the new GS/OS disks. Then boot one of your GSeS into the Finder from the new System Disk and select the new desk accessory (NDA) Control Panel from the apple pull-down on the Finder's menu bar. Using the mouse pointer and button, select the slots icon and set slot 1 or 2 to Your Card, depending on the port to which the AppleTalk cabling is connected, and slot 7 to AppleTalk. Use that NDA to make those same slot assignments on your other GS, or use the classic desk accessory Control Panel (Open apple-Control-Escape).

Use a "lukewarm" boot to restart your GS and Finder (press Open apple, Option, Control, and Reset simultaneously, then Open apple-Control-Reset); insert the System Tools disk; launch the Installer program; and select to install the LaserWriter on your System Disk. If you've also got an ImageWriter and an ImageWriter LQ connected



to the AppleTalk network, you might now install those drivers on the System Disk. When you're done, the Installer will insist that you start your GS again.

Re-access the Control Panel NDA, select the LaserWriter icon you've just installed; highlight the LaserWriter name, which appears in the adjacent window; and, finally, click on the ImageWriter Emulator button in the center of the same window. Window messages will tell you the system is checking for, and then downloading, the ImageWriter emulator (IWEM) program to the LaserWriter.

Close the Control Panel window, and insert and "open" your AppleWorks program disk. Trash ProDOS, if it's the old version 1.1.1, and copy P8 from the System folder on your System Disk to the AppleWorks disk. Rename that copied P8 to ProDOS. Now either launch AppleWorks from the desktop or use the Open apple-Control-Reset sequence to "warm-boot" your AppleWorks disk.

In AppleWorks, select to install a new printer from the Other Activities Printer Options menu. Choose the ImageWriter, although you might name it AppleTalk, and choose to print from slot 7, not slot 1 as you might have when using a directly connected ImageWriter.

You're done. When you print a document with AppleWorks, just select the AppleTalk printer, and AppleWorks will print on the LaserWriter in Courier font at 12 characters per inch. The IWEM program you sent to the LaserWriter also enables all other standard features, including boldface, underlining, superscripts, and subscripts, available for the ImageWriter I and II printers. The proportional-1 and proportional-2 print options use Times Roman and Times Bold fonts, respectively.

You need to install the drivers on the System Disk and set up the AppleTalk printer in AppleWorks only once: Simply make copies of the modified disks for distribution to other GSeS. Thereafter, however,

you must start up your GSeS with the modified System Disk to enable AppleTalk, then launch AppleWorks from the Finder desktop. You needn't select LaserWriter from the Control Panel or download IWEM if you haven't turned off the LaserWriter between sessions.

Finally, if you have other AppleTalk printers connected to the system, install their AppleTalk drivers as discussed earlier and switch to them from the Control Panel. Then, without further modification, printing to AppleTalk, assigned to slot 7 in AppleWorks, will send your document to the alternate printer automatically.

Too bad enabling an AppleTalk printer from AppleWorks isn't a bit easier. I'll leave it to you to decide whether it'll be easier to print to the LaserWriter from AppleWorks than to import your files into AppleWorks GS and use the LaserWriter printer option.

APPLE CLINIC IS A FORUM FOR ANSWERING YOUR QUESTIONS ABOUT APPLE II HARDWARE AND SOFTWARE. ADDRESS YOUR CORRESPONDENCE TO APPLE CLINIC, INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458. BECAUSE OF THE VOLUME OF LETTERS, MOST WON'T APPEAR IN PRINT, BUT WE'LL TRY TO RESPOND IF YOU ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE.

## QUICKIES

Save your GS' power switch by using a "lukewarm" instead of a "cold" boot on your GS: After making changes in the Control Panel, being stymied by a Fatal System Error, or experiencing any other condition that requires a "cold" restart, press the open-apple, option, control, and reset keys simultaneously to enable the built-in GS diagnostics. Then press Open apple-Control-Reset to reboot.

—Ellen Otilow  
Weston, MA

## LOWEST PRICE DIRECT FROM MANUFACTURER



### 5 1/4" APPLE® II DISK DRIVE

- Apple® II Series & Laser 128 series compatible
- Speed adjustable
- Brushless direct drive motor
- 48 hrs factory burnt-in

Apple IIc/IIgs cable installed  
— \$7.00 extra  
Unidisk Port option — \$23.00 extra



### 5 1/4" DRIVE FOR PC TRANSPORTER®

You can use our drive with PC Transporter to run MS-DOS programs on your Apple II like they do on IBM compatibles.

Single-drive system **\$169**

Dual-drive system **\$259**

Half-height drive **\$115**

(Add to single-drive to make dual-drive system.)

### NOW AVAILABLE-HARD DISKS FOR ALL APPLE II'S (YES, EVEN THE IIC)

20 MB SCSI Hard Drive for IIc/IIgs ..... **\$619**

30 MB SCSI Hard Drive for IIc/IIgs ..... **\$719**

20 MB SmartPort Hard Drive for IIc ..... **\$719**

### ALSO AVAILABLE:

EXTERNAL 3.5" 800 K Drive for Apple IIgs

# MEIJI®

## 6-MONTHS WARRANTY

SEND MONEY ORDER OR CHECK TO:  
KINSON PRODUCTIONS CORP

42484 — nrk — Highway,  
Rockville Centre, NY 11570  
For inquiry please call (516) 763-0906  
Fax (516) 763-0938



No COD Order  
Dept. Schou's P.O.

TOLL FREE PHONE NO.  
FOR ORDER ONLY  
1-800-433-6224 (OUTSIDE NY)  
1-800-553-6224 (INSIDE NY)  
Please call between Eastern time  
8:00 A.M. — 6:00 P.M.

Shipping: UPS ground: \$6.00 per drive  
except \$10.00 per drive for dual-drive.  
Fed-Express (next day air): \$9.00 per drive  
except \$18.00 per drive for dual-drive  
NY Resident: Please add 8% sales tax.

Circle 131 on Reader Service Card.

Apple is a trademark of Apple Computer. PC Transporter is the trademark of Applied Engineering.  
IBM is the trademark of IBM Corp.  
Terms: 15% restocking fee on non-defective goods. No return w/o RMA\*. No refund on shipping.



# GOLEM COMPUTERS

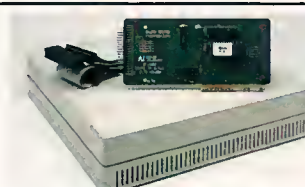
## PRESENTS

# Hot Disks!

Receive **FREE** Mouse Pad  
On Orders of \$150.00  
and Over

**ComputerEyes (IIGS) \$200.00**  
**DIGITAL VISION (Ile) \$106.00**

**ComputerEyes** is a video digitizer that connects between your computer and any standard video source (video camera, VCR, etc) to bring real world images into your computer. Images can then be manipulated, printed, or saved to disk and imported into virtually any graphics program. Use it to add images to desktop publishing, image databases, computer art, to create custom T-shirts...the possibilities are endless!



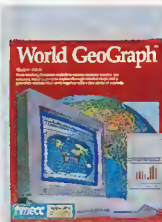
**Falcon 10 MB external 5 1/4 Hard Drive for Apple II+, Ile, IIGS and Laser 128. \$275.00**

### APPLIED INGENUITY

Falcon was designed with the conscience user in mind. 10MB is a lot of storage which will give you all the benefits of a hard drive without spending much more than the cost of a floppy drive. Compatible with GS/OS.

**World GeoGraph (IIGS) \$86.00**  
**MECC (IIGS School) \$95.00**

**World GeoGraph** is a geography discovery learning tool featuring on-screen maps, graphing capabilities, and an in-depth database that includes 55 categories of information about 177 nations around the world. It is not designed to function as an "electronic atlas." Rather, it is designed to help users "think like geographers" as they exercise their inquiry and analytical skills in learning about the world.



**BeagleWrite GS \$62.00**  
**BEAGLE BROS.**

Take advantage of the power and speed of your Apple IIGS with **BeagleWrite GS**, the first mouse-based word processing program for the IIGS. **BeagleWrite GS** lets you create documents with color text and graphics on an ImageWriter II end print with near-typeset quality on a LaserWriter! With **BeagleWrite GS**, what you see on the screen is what you get when you print. Designed especially for educational, home and small business use. **BeagleWrite GS** is the only word processor you'll ever need for the Apple IIGS.



**ThunderScan \$153.00**  
**THUNDERWARE**

Create high-resolution graphics from almost anything that will roll through your ImageWriter. **ThunderScan** rides in you ImageWriter printer to capture crisp, eye-catching graphics for the Apple Ile, IIC and IIGS. Images that you can change, enlarge or reduce, combine with text in AppleWorks, Desktop Publishing software and enhances with painting and drawing programs.



### HARD/FLOPPY DISK DRIVES

**AMERICAN MICRO**  
5 1/4 Drive (IIGS, Daisy-chainable) 145.  
3 1/2 Drive (IIGS, IIC+) 187.  
**CHINOOK Apple SCSI, Software**  
CT-20 (Ile, IIGS) 565.  
CT-40 (Ile, IIGS) 715.  
CT-20C (IIC/IIC+) 560.  
**APPLIED ENGINEERING**  
Vulcan Hard Drive 20MB 477.  
**VULCAN HARD DRIVE 40MB** 624.  
5 1/4 Drive (Ile/Ile, IIGS) 119.  
Trans Drive Dual 294.  
Trans Drive Single 195.  
**APPLIED INGENUITY**  
InnerDrive 20MB (Ile, IIGS) ea. 455.  
InnerDrive 40MB (Ile, IIGS) ea. 600.  
InnerDrive 100MB (Ile, IIGS) Call.  
OverDrive 20MB (Ile, IIGS, Laser) 390.  
**OVERDRIVE 40MB (Ile, IIGS, Laser)** 590.  
C Drive 20MB (Ile Inter) 530.  
C Drive 40MB (Ile Inter) 655.  
VCR Hard Disk Backup 150.  
**LASER COMPUTER**  
External Disk Drive (5 1/4" Laser) 90.  
External Disk Drive (3 1/2" Laser) 185.  
Universal Disk Controller 45.

### MODEMS

**APPLIED ENGINEERING** Detelink 1200 132.  
Detelink 2400 178.  
**SUPRA** 2400 External 130.

### COMPUTERS

**LASER COMPUTER** Laser 128E 375.  
Laser 128EX 440.  
Laser 128EX/2 (3 1/4" Drive) 500.

### MONITORS

**LASER COMPUTER**  
Color RGB Monitor 298.  
Amber, Green Monitor ea. 105.  
**MAGNAVOX**  
RGB/Composit (CM8782) 285.

### MEMORY & INTERFACE

**APPLIED ENGINEERING**  
**AUDIO ANIMATOR** 180.  
Converter 88.  
Rem Factor 512K 242.  
Rem Factor 1MB (Ile+, Ile, IIGS) 345.  
Ram Works III 512K (Ile) 205.  
Ram Works III 1MB (Ile) 308.  
Ram Works III OK 106.

GS-Ram 1MB (IIGS)  
GS-Ram PLUS OK  
GS-Ram PLUS 1MB  
GS-Ram PLUS 2MB  
GS-Ram Ultra 1MB  
Trans Warp (Ile+, Ile)  
Ram Express 256K (Ile+) 375.  
Ram Express 1MB (Ile+) 440.  
Serial Pro (Ile+, Ile, IIGS) 500.  
Parallel Pro, Timemaster HO  
**PC TRANSPORTER 768K**  
RamKeeper  
Sonic Blaster  
**TRANSWARP GS**  
**APPLIED INGENUITY** GS Juice 2MB 350.  
Juice Plus 1MB (IIGS) 250.  
GS Juice 4MB 750.  
C Keeper 256K (IIGS) 155.  
C Keeper 1MB (Ile) 312.  
**BITS & PIECES**  
**ROCKET CHIP 10MHz**  
**MEMORY** Ram's  
**ORANGE MICRO** Hotlink (Ile) 49.  
Grappler C/MAC/GS, Prograpper ea. 74.  
**STREET ELECTRONICS** Echo IIB 96.  
Echo Plus 122.  
**THIRDWARE** Fingerprint GSI (IIGS) 79.  
**ZIP TECHNOLOGY** Zip Chip 8MHz (Ile/Ile) 187.

### ACCESSORIES

**APPLIED INGENUITY** GS Keyboard 150.  
Call  
**BLANK MEDIA** (Bulk) 308.  
**CH PRODUCTS** Flight Stick 50.  
Mach III w/fire Button (Ile/Ile, IIGS) ea. 34.  
Mach IV Plus (IIGS/Ile) ea. 59.  
**KENNINGTON** System Saver 64.  
Turbo Mouse ADB (IIGS) 115.  
**SYSTEM SAVER IIGS** 69.  
Mousepad B.  
Anti-Glare Filter (IIGS) 34.  
**KURTA** IS/ADB Tablet w/styles (IIGS) 289.  
**LASER COMPUTER** Mouse 45.  
Expansion Box 55.  
Cables - Parallel, Serial, RGB, Modem ea. 16.  
**RIBBONS** Imegewriter II, (4 Colors) 8.  
Imegewriter (Black, Red, Brown, etc.) ea. 4.

### PRINTERS

**LASER COMPUTER**  
Call  
**190A (IMAGEWRITER I COMPATIBLE)** 240.  
**PANASONIC** KX P1124 (80cps/24pin) 340.  
KX P1180 (192 cps/36 cps NLO) 195.  
KX P1191 (240 cps/48 cps NLO) 259.  
**STAR MICRONICS** NX-1000 195.  
NX-1000 Rainbow (Color) 265.  
**SEIKOSHA** 1000AP (Imegewriter I) 235.



FOR **FAST SERVICE** 1-800-248-0363

Mon. thru Fri. 7am - 6pm

Sat. 9am - 4pm - Pacific Time

# GOLEM COMPUTERS

P.O. BOX 6698

WESTLAKE VILLAGE, CA 91360

**Special  
of the Month!**  
**Supra 2400 Modem  
With Point to Point  
& Cable**  
**\$180.00**

## ENTERTAINMENT

**ACCOLADE** Mini Putt (IGS), Meen 18 (GS) ee. 27.  
Jack Nicklaus Golf (IGS) 32.  
Test Drive II (GS), Hardball (GS) ee. 30.  
Test Drive (II/IIc), Bubble Ghost (IGS) ee. 23.  
California Challenge (IGS) 16.  
The Super Cars (IGS) 18.  
4th & Inches, Serve & Volley (IGS) ee. 27.  
4th & Inches Team Construction (IGS) 14.  
**BRITANNICA** Charley Golf (IGS) 20.  
Laser Force (IGS) 20.  
Gree Western Shoot-Out (IGS) 20.  
**BRODERBUND** Wings of Fury 23.  
Downhill Challenge (IGS) 23.  
Space Rogue 32.  
Wind Walker 27.  
Ancient Art of War at Sea 27.  
Ultima Trilogy, Ultima IV, V ee. 40.  
Tangled Teles (II/IIc) 20.  
**CALIFORNIA DREAMS**  
Vegas Gambler (IGS), Vegas Creps (IGS) ee. 27.  
**CINEMAWARE** King of Chicago (IGS) 32.  
Delander of the Crown (IGS) 32.  
**ROCKET RANGERS** 32.  
**THREE STORIES** 32.  
**DISCOVERY** Sword of Soden (IGS 768K) 32.  
**ELECTRONIC ARTS** Bard's Tale 17.  
Cribbage King/Gin King (IGS) 40.  
Reach for the Stars (IGS) 40.  
Cartooner (IGS) 40.  
Zany Golf (IGS) 26.  
Bard's Tale II (IGS) 32.  
Bard's Tale III 32.  
Chessmaster 2100 32.  
Hunt For Red October (IGS) 32.  
Hunt For Red October (II/IIc) 32.  
John Madden Football (II/IIc) 32.  
**KEEP THE THIEF (IGS)** 33.  
Tomahawk (IGS) 27.  
Halls of Montezuma (IGS) 30.  
Marble Madness (IGS), Yeager's AFT 30.  
Skate or Die (IGS) ee. 17.  
Chessmaster 2100 (IGS) 32.  
Lila & Death (IGS) 32.  
**AAARGH!** (IGS) 27.  
**EPYX** World Games, Winter Games ee. 14.  
World Games (IGS), Winter Games (IGS) ee. 14.  
California Games (IGS) 30.  
Technocop (II/IIc) 27.  
F.T.L. Dungeon Master (IGS) 27.  
**MASTERPLAY** Star Segal 53.  
**MASTERTRONICS**  
John Elway's Quarterback ee. 27.  
War in Middle Earth (IGS) 32.  
Barbarian (IGS) 27.  
**MEDIAGENIC/ACTIVISION**  
Last Ninja (IGS) 26.  
Black Jack Academy (IGS) 27.  
Neuromancer (IGS) 30.  
Battlechess (IGS) 32.  
Zork Zero (IGS) 40.  
GBA Championship Basket (IGS) 16.  
**MICROPROSE** Pirates (II/IIc, IIGS) ee. 26.  
Silent Service (IGS) 25.  
**MICRO REVELATIONS**  
**XENOCIDE (IGS)** 32.  
**MINDSCAPE** Balance of Power (IGS) 32.  
Gauntlet, Paper Boy, Paper Boy (IGS) ee. 25.  
Gauntlet (IGS) 29.  
Super Star Ice Hockey (IGS) 29.  
Captain Blood (IGS) 30.

Uninvited (IGS), DejeVu I, II (IGS) ee. 32.  
Hostage (IGS) 27.  
**PBI SOFTWARE** (All IIGS) ee. 30.  
See Strike, Monte Carlo ee. 23.  
Tower of Myreglen, Allen Mind ee. 16.  
Cavern Cobra, Strategic Conquest ee. 27.  
**PELICAN** Pow! Zap! Kerplunk! 14.  
**SIERRA ON-LINE** King's Quest I, II, III ee. 31.  
Gold Rush (IGS), Black Cauldron (IGS) ee. 27.  
Thexder (II/IIc, IIGS) ee. 24.  
King Quest I, II, III, IV (IGS) ee. 32.  
Space Quest I, II (IGS) ee. 32.  
Leisure Suit Larry (II/IIc, IIGS) ee. 26.  
Police Quest (IGS), Manhunter NY (IIGS) ee. 32.  
Silpheed (IGS) ee. 32.  
**SIR-TECH** Wizardry, Wizardry 5 ee. 32.  
Knight of Diamonds, Legacy of Lyligemyn ee. 32.  
Return of Werde 35.  
**SPECTRUM** Tetris (II, IIGS) ee. 32.  
SSI Pod of Redience 32.  
Adv. D & D - Pool of Redience (IIGS) 30.  
Adv. D & D - Pool of Redience (II/IIc) 30.  
Adv. D & D - Curse of Azure Bonds (II/IIc) 30.  
Adv. D & D - War of the Lance (II/IIc) 30.  
Adv. D & D - Dungeon Master Asst. I, II ee. 30.  
**SUBLOGIC** Flight Simulator II 17.  
Scenery Disks I (IGS) 40.  
**TAITO** Arkanoïd II (IGS) 40.  
Bubble Bobble (II) 24.  
**THREE-SIXTY SOFTWARE**  
**DARK CASTLE (IGS)** 27.  
Werlock (IGS) 30.

## EDUCATION

**BARRON'S** Study Program For SAT V2.0 32.  
**BRITANNICA** Jigsaw (IGS) 25.  
Algebra 1, First Semester 32.  
Algebra 1, Second Semester 32.  
Writing Skills 1-5 66.  
ee. 17. **BRODERBUND** Science Tool Kit 49.  
Science Tool Kit Module 1, 2, 3 ee. 27.  
Science Tool Kit 49.  
VCR Companion 33.  
Where in Europe, Where In USA ee. 27.  
Where in Time 29.  
Where in the World (IIGS) 30.  
Where in the World 24.  
Geometry (IIGS) 53.  
**DAVIDSON & ASSOCIATES**  
Read & Roll, Word Attack Plus ee. 29.  
Word Attack Plus - Spanish, French ee. 29.  
Math & Me, Reading & Me ee. 24.  
Math & Me (IIGS), Reading & Me (IIGS) ee. 29.  
Spell It Plus, Grammar Gramlins ee. 29.  
**MATH BLASTER MYSTERY** 29.  
Math Blaster Plus, Age Blaster Plus ee. 29.  
**DESIGNWARE** Spellcopter, Math Maze ee. 26.  
Designasaurus (II/IIc) 32.  
Designasaurus (IGS), Revolution 78 (IGS) ee. 32.  
Grammar Examiner, States & Traits ee. 25.  
The Body Transparent, European Nations ee. 25.  
**ELECTRONIC ARTS**  
Mavis Beacon Teaches Typing (IGS) 32.  
Mavis Beacon Teaches Typing (II/IIc) 25.  
**FIRST BYTE** (for IIGS) 768K Req.) 25.  
Mathtalk, First Shapes, Kidteik ee. 27.  
Speller Bee, Smoohtalker ee. 27.  
The Rhyming Notebook 27.  
Mathtalk Fractions, First Letter & Words ee. 27.

**HARDCOURT, BRACE, JOYANOVICH**  
Computer Prep for the SAT 26.  
**ILS SOFTWARE** 27.  
Computer Preparation SAT, GRE ee. 26.  
**MECC** World Geograph (IIGS) ee. 33.  
Oregon Trail (II/IIc) ee. 32.  
**OREGON TRAIL (IGS)** 23.  
**MINDSCAPE** Crossword Magic 33.  
**PASPORT DESIGN** Master Tracks 165.  
Master Track Pro (IGS) 260.  
Master Track Jr. (IGS) 100.  
**PYGROPHICS**  
Music Writer Level 1 (IIGS) ee. 26.  
Music Writer Level 2 (IIGS) ee. 32.  
Music Writer Level 3 (IIGS) ee. 33.  
**SIMON & SCHUSTER**  
Typing Tutor IV (IIGS) ee. 32.  
**THE LEARNING COMPANY**  
Reader Rabbit (IGS) ee. 32.  
Writer Rabbit, Think Oulck, ee. 30.  
Rocky's Boots (II/IIc/IIGS) ee. 30.  
Meth Rabbit, Reader Rabbit, Gertrudes ee. 30.  
Secrets, Magic Spells (II/IIc/IIGS) ee. 30.  
**CHILDREN'S WRITING**  
**PUBLISHING CENTER (II/IIc, IIGS)** 40.  
**UNICORN SOFTWARE (IGS Only)**  
All About America, Read A Rama ee. 40.  
Math Wizard, Animal Kingdom ee. 33.  
**WEEKLY READER** Sticky Bears - ABC's, ee. 33.  
Basketbounc, Bop, Meth, Meth II, ee. 24.  
Numbers, Shapes, Opposites, Reading ee. 24.  
Sticky Bears - Basics, Drawing, Music, ee. 30.  
Music Library, Perts of Speech, ee. 30.  
Printer, Reading Comprehension, ee. 30.  
Spellgrabber, Town Builder, Typing, ee. 30.  
Word Problems 30.  
Car Builder, Codes & Hyphens, ee. 30.  
Exploring Tables & Graphs-Level I, II, ee. 30.  
Map Skills, Meth Word Problems, ee. 30.  
Punctuation Rules, Reading ee. 30.  
Comprehension, Vocabulary Devel. ee. 30.  
Shapes (Talking, IIGS) ee. 30.  
Opposites (Talking, IIGS) ee. 30.  
ABC's Talking (IIGS) ee. 30.

## BUSINESS

**BEAGLE BROS.** BeagleWrite GS 62.  
BeagleWrite Picture Manager GS (IIGS) 31.  
BeagleWrite Font Library GS (IIGS) 25.  
**BERKLEY SOFTWARES** GeoPublish 66.  
GeoFile, GeoCalc ee. 48.  
**BRODERBUND** Bank Street Writer Plus 39.  
On Balance 205.  
**CLARIS** Appleworks GS 175.  
**APPLEWORKS V3.0** 60.  
**DAC SOFTWARE** DAC-Easy Accounting 53.  
**ELECTRONIC ARTS** Delux Write II (IIGS) 89.  
Delux Write II/Point II Combo (IIGS) 267.  
**MANZANITA**  
Business Works (ProDOS, 2x3 1/2" Drives) ee. 62.  
**SENSIBLE SOFTWARE** Sensible Writer ee. 68.  
Sensible Speller IV (PRO DOS) 55.  
Sensible Grammar Checker 32.  
**SOFTWARE PUBLISHING**  
PFS: File & Report (128K PRO DOS) 66.  
PFS: Workmates (128K PRO DOS) 110.  
PFS: Write w/Speller (128K PRO DOS) 65.  
**BTONE EDGE** DB Master Version 5 117.

DB Master Professional 190.  
**TIMEWORKS** Publish It 2 74.  
Graph It! 47.  
Font Pack I, II, Symbols & Slogans, ee. 27.  
People, Pieces & Things ee. 27.  
**WORDPERFECT** 23.  
**WORDPERFECT (IGS), (II/IIc)** aa. 93.

## HOME/PERSONAL

**ABRACADATA** Design Your Own Home ee. 59.  
Architecture (IGS), Interior (IGS) ee. 59.  
Landscape (IGS) 59.  
**BAUDVILLE #16 /Paint (IIGS)** 46.  
Award Maker Plus 29.  
**BEAGLE BROS.**  
Beagle Draw GS (IGS) 53.  
Beagle Draw GS Clip Art (IIGS) 31.  
**BRODERBUND** The Print Shop ee. 37.  
The Print Shop (IIGS), Pentavision (IIGS) ee. 37.  
The Print Shop Library (IIGS)- ee. 23.  
Sampler, Party ee. 15.  
The Print Shop Library 1, 2, 3 40.  
Dazzle Draw 65.  
**ELECTRONIC ARTS** Deluxe Paint II (IIGS) 56.  
**INSTANT SYNTHESIZER (IGS)** 35.  
**INTUIT** Quicken 89.  
**MECA** Managing Your Money 33.  
**MECC** Celender, Crafter ee. 46.  
**MEDIAGENIC/ACTIVISION**  
Paintworks Plus (IIGS) 66.  
Paintworks Gold (1.25MB Req.) 59.  
Draw Plus (IIGS), Music Studio (IIGS) 80.  
Paint, Write, Draw Bundle (IIGS) 30.  
**MOLO PRESS** Willmaker ee. 20.  
**OLTRAD** Graphics Images (II/IIc) 33.  
Graphics Images (IGS) 33.

## UTILITY/LANGUAGE

**BEAGLE BROS.** Timeout Graph 52.  
Designworks Accessories (IGS) 35.  
Timeout-Superfont, Quickspell, Telecom ee. 45.  
Timeout-Filemaker, Sidespread, ee. 31.  
Power Pack, DeskTools II, Thesaurus ee. 48.  
DeskTools ee. 35.  
Timeout-Reportwriter ee. 18.  
Timeout-Ultramacros, Spreadtools ee. 31.  
Timeout-Macrotools, Macrotools II ee. 31.  
Point to Point 68.  
GS Font Editor, Program Writer ee. 27.  
**BIG RED COMPUTER** 27.  
**PS LOVERS (IGS, II/IIc)** ee. 27.  
Labels, Labels, Labels ee. 38.  
**BYTE WORKS** ORCA/C, Pascal (IIGS) ee. 38.  
**ORCAD** Desktop (IIGS) 42.  
**ORCAM** 1.1 25.  
**CENTRAL POINT** Copy Two Plus 79.  
**CHECKMATE TECHNOLOGY** Proterm 95.  
**MICOL** Advanced BASIC (IIGS) 79.  
**ROGER WAGNER** Martin & 16 (PRO DOS) 40.  
Softswitch (IIGS) 62.  
Graphix Exchange (IIGS) ee. 32.  
**HYPER STUDIO (IGS)** 33.  
Macrometa (IIGS) 90.  
**TERRAPIN** Logo Plus ee. 83.  
**TML** Pascal (IIGS), Basic (IIGS) 32.  
Source Code Library (IIGS) 46.  
Speech Toolkit (IGS) 66.  
**VERSACAD** CAD Apple IIc/IIe



FOR CUSTOMER SERVICE CALL 1-805-499-7785

Monday thru Friday 9 a.m. to 5 p.m. - Pacific Time

To order call toll free or send check or money order to the P.O. Box only. VISA/MC, American Express and C.O.D. welcome. Personal and company checks, allow 10 working days to clear. Specific computer type, if to be back order or to send refund. California residents add 8% sales tax. Include phone number with order. All sales are final. Defective items will be replaced or money refunded, at our discretion. Call for Return Authorization number. We are not responsible for suitability or compatibility. Restocking fee of 15% will apply. Shipping and handling: Continental U.S.: Software: add \$5.00; Hardware: add 5% (\$8.00 min). APO, FPO Alaska, Hawaii, Puerto Rico and Canada. Software: add \$5.00 min. Hardware: add 10% (\$10.00 min).

INTERNATIONAL ORDERS WELCOME

ALL ITEMS SUBJECT TO AVAILABILITY. PRICES AND STIPULATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

1111 Rancho Conejo Blvd. #407

IN CALIFORNIA CALL 1-805-499-0197

Newbury Park, CA 91320

Mon. thru Fri. 7am - 6pm - Sat. 9am - 4pm Pacific Time

**ORDERS ONLY 1-800-248-0363 • FAX (805) 498-7689**

# REVIEWS

## INCIDER'S RATINGS

Excellent—remarkable ♦ ♦ ♦ ♦ ♦ Very good—impressive ♦ ♦ ♦ ♦  
Good—average ♦ ♦ ♦ Fair—flawed ♦ ♦ Poor—unacceptable ♦



## TELEWORKS PLUS

**ACTIVISION**  
3885 Bohannon Drive, Menlo Park, CA 94025-3048, (415) 329-0800

Telecommunications software;  
768K Apple IIGS; modem required; \$99.95

Rating: ♦ ♦ ♦

**T**ap into the world of telecommunications, and you'll find Apple II users enjoying such varied pursuits as sharing programs, matchmaking, and tracking the stock market.

Telecommunications has also enabled the physically challenged to venture into new areas, and last summer Chinese students in America went on line to participate in the pro-democracy movement.

Activision's contribution to telecommunications is an ambitious software package. Teleworks Plus is the first product to marry Apple IIGS Finder technology with the modem. Although it's a successful effort, the product falls short of what Activision had hoped. Nevertheless, Teleworks could advance the state of Apple II telecommunications.

Going on line with your computer requires only a phone line, modem, and software with

which to manage the communications session. The modem translates your typing into phone signals. The software, or *terminal program*, simply lets your Apple react to a remote telecommunications host, much like someone at work using a terminal connected to a central host computer located elsewhere in the building or city.

Teleworks Plus is the only terminal software designed specifically to exploit your GS' capabilities. It operates completely under the standard IIGS desktop, and you can manage an entire on-line session with the mouse and pull-down menus.

The ultimate test for productivity software such as this is whether it can actually save you time. The answer for Teleworks is a crystal-clear maybe. Teleworks is one of the few programs that has merged itself cleanly into my work routines, without requiring that I change my schedule to meet its expectations. As you'll see, however, Teleworks does present some functional difficulties that must be solved for it to truly succeed.

### THE PLUS

The magic of Teleworks Plus is that Activision kept *you* in mind when it was designing the software. Setup and use are both friendly, and Teleworks offers some features unchallenged by other terminal programs.

The built-in scripting language is particularly strong. An auto-learn scripting feature lets you record procedures to manage an entire session or selected parts.

An obvious use for this is to record the dialing and log-on process for any bulletin board you call regularly. You might also want to scan your mail and save it to disk, or do a keyword search for all new messages you might find interesting, and save those to disk to read later.

The scripting language also lets you write procedures directly. Because of the strong ►



**ANOTHER SUPRA VALUE!**

Suggested Retail

**\$149<sup>95</sup>**

**NEW LOW  
PRICE!**

**Supra Modem 2400**  
HS AA CD OH RD SD TR MR ON/C

Actual  
Size

### Compatible

The SupraModem 2400 is 100% compatible with industry-standard, intelligent "AT" commands and all commonly used protocols (including Bell 103/212A, CCITT v.22, and CCITT v.22bis). Since the SupraModem operates asynchronously at **300**, **600**, **1200**, and **2400** baud, you can communicate at whatever rate you need to. All these features let you use the SupraModem 2400 to connect with most modems being used today.

### Affordable

In addition to its low price, the SupraModem 2400 will save you money by letting you communicate at 2400 baud, thus decreasing your on-line time. The SupraModem 2400 incorporates the advanced Intel 89024MS chip set. This design utilizes fewer parts, assuring operation long after the one-year warranty period.



1133 Commercial Way / Albany, OR 97321 U.S.A.  
Phone: (503) 967-9075 / Fax: (503) 926-9370

Available at your local dealer or call  
**(800) 727-8772**  
Orders Only

### Easy to Use

The SupraModem 2400 is very easy to use. It features autoanswer and autodial (tone and pulse) for performing phone tasks, and it has a program-mable-volume speaker for monitoring call progress. Storing phone numbers and user configurations is also simple because of the modem's programmable nonvolatile memory.

These features and others are explained thoroughly in the comprehensive *SupraModem 2400 Operator's Manual*. Once you understand the basics, the modem's quick-reference card makes finding command descriptions and other modem information quick and simple.

And to make it even easier to begin telecomputing, the SupraModem 2400 comes with introductory packages for several popular on-line services.

**Special Package for the Apple III! The SupraModem 2400AP combines the standard SupraModem 2400 package with popular telecommunications software and a cable for connecting the modem to your Apple II.**

**Introducing the Exciting New**  
**SupraModem<sup>TM</sup>**  
**2400**

Circle 104 on Reader Service Card.

# REVIEWS

auto-learn feature, though, I've yet to find a reason to write a procedure myself. The scripting commands let you define any procedure as a default to be active when you boot Teleworks.

Another strong feature is the ability to define 16 macro commands. Combined with the scripting and your smarts, the macros could make Teleworks the closest you'll get to hands-off telecommunications.

## GET THE MESSAGE

A big part of any on-line session is message handling, and Teleworks includes a number of features to help you with this task. Use the window scroll bar to page through all the text that's come across your screen. You can manipulate all or part of the text with the standard cut, copy, paste, edit, clear, and save commands. You may print the entire scrollback or just part of it, print a file, or dump everything continuously to a printer.

Use standard ASCII, XModem, and YModem file-transfer protocols to upload and download files. XModem and YModem save time during transfers, but there's nothing exceptional in this area. The only praise here is that Teleworks does have file-transfer capability.

The software sports a number of features that make using commercial on-line services less expensive and less troublesome. These include the scripting language and an on-line time counter, as well as the ability to send a BREAK code (to get you out of trouble when you get lost) and automatic hangup after a certain time on line.

## PACKAGED GOODS

For the most part, Teleworks Plus has an enviable set of features. Some, such as macros and scripting, represent a true advance that will challenge other publishers to improve their offerings. These features collectively create one of the easiest-to-use terminal packages available.

Two other goodies come with the Teleworks Plus package—subscriptions to CompuServe and AppleLink Personal Edition. This is a \$79.90 value, although you're not required to use either of these services, which charge a fee for each hour spent on line.

## AND THE MINUS

With all its impressive features, Teleworks Plus does have a number of operational prob-

lems, as well as a couple of features that could have been better designed. Activision has a reputation for fine product support, but the Teleworks Plus product manager knew of no plans to revise the software. In other words, you'll have to live with the problems—at least for now.

The most critical bug is that you can't upload to a bulletin-board system that runs on GBBS Pro—the *de facto* standard for Apple II BBSes. The scarcity of advanced file-transfer protocols is a related design weakness. There's ASCII, XModem, and straight YModem—period.

The most serious design weakness is that you can't run at any speed greater than 2400 bits per second. Although this is currently the most common speed, nearly one-quarter of Apple II owners now own 9600-bps modems. As prices drop, 9600 will replace 2400 as the preferred rate of operation.

## BAD CONNECTION

After downloading a file, the program asks you for a name under which you'll save it. No matter what you type, the software rejects the name at first; try the same name again, and it works.

When uploading a file, a nice vertical scroll bar comes up on screen showing the progress of the file transfer. The dialog box is laid out wrong, however, so the scroll bar obscures the filename.

One of the so-called standards for squeezing files—Binary II—is built into Teleworks. This lets the program group large numbers of files into one compact file for easy transfer. Teleworks ignores two competing standards, however—both of which are now more widely used than Binary II.

The menu function itself will hang your computer if you attempt to work on a file that isn't in Binary II format. This is important when you consider there isn't any message to alert you to which files are saved in Binary II and which files aren't.

When reading on-line messages, text scrolls by in a window, which makes it easy to use the scroll bar to go back and reread something. But the scroll bar—which overlays the last few characters on the right side of the screen—flickers on and off constantly to let you read the full line. That made me nervous.

Another problem with the screen display is that Teleworks drops characters regularly, so some of what you see will be garbage. Likewise, anyone who types with more than two fingers ►

## AT A GLANCE

**Multiple Choices** (November 1989, p. 41, by James Trunzo), Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667; 128K Apple IIe, IIc, IIgs, printer; \$59.95

Rating: ♦ ♦ ♦

Multiple Choices lets you construct nine different types of word activities—word search, scramble, jumble, acrostic and double acrostic, true/false, fill-in-the-blank, multiple choice, and matching. The subject matter can come from any discipline or grade level, provided that your questions fit into one of those formats.

You can enter up to 50 questions per test or puzzle, except for multiple choice, which takes up to 120 lines. In activities such as Word Search or Acrostics, Multiple Choices takes your input and actually constructs the puzzle for you. In activities such as Matching, Multiple Choices saves you time by automatically randomizing the order of the columns that make up the test.

**OfficeWorks** (November 1989, p. 102, by Gregory Glau), K-12 MicroMedia Publishing, 6 Arrow Road, Ramsey, NJ 07446, (201) 825-8888; 128K Apple IIe, IIc, IIgs, AppleWorks; \$49.95

Rating: ♦ ♦

The 23 AppleWorks templates provided on the OfficeWorks disk cover a wide range in terms of usefulness and practicality for the average business office. A few of the OfficeWorks templates are worthwhile; many are of minimal benefit, however.

The OfficeWorks manual leaves out just enough information that you have to know more than you'd expect about AppleWorks and how to customize the templates. It's too bad, because the idea here is good—to provide functional business forms that the average small company can use to help conduct its day-to-day activity. The problem with OfficeWorks isn't its concept, but its execution.

Continued



# HUNTING FOR GRAPHICS?

Watch your favorite Apple II painting programs come alive with ThunderScan. ■ Just snap the ThunderScan cartridge into your ImageWriter (except LQ) and you've instantly turned your trusty printer into a high-powered imaging system for your IIfx, IIfx, IIfx. Now you're set to capture even the most awesome graphics and "bring 'em back alive" for use with leading Apple II programs for painting and desktop publishing. ■ For example, you can use ThunderScan to scan drawings and photos and then enhance them with Appleworks GS, Paintworks, DeluxePaint, DazzleDraw, or Publish It!. ■ Whether you're hunting tigers or lion art, let your imagination

run wild! Adjust brightness and contrast, without rescanning your image. Choose any of four image modes: half-tones, line art, 16-level gray scale, or color effects. And ThunderScan supports High Res, Double Res, and IIfx Super Res displays (for quality no other imaging system can match). ■ We know it's a jungle out there. But at just \$219 from your dealer, ThunderScan proves you can hunt big game, without a big budget.



When your image really matters.



**ThunderScan**  
FOR APPLE II

21 Orinda Way, Orinda, CA 94563 415/254-6581  
FAX 415/254-3047

## CAPTURE SOMETHING WILD.

**ThunderScan:**  
**a great gift idea!**  
Now with new Apple IIfx software.



*Scanned with ThunderScan and color-enhanced with Paintworks Plus.*

The following are trademarks of the companies indicated:

ThunderScan, Thunderware and the Thunderware logo: Thunderware, Inc.; Appleworks, Claris, Inc.; Paintworks, Activision, Inc.; DeluxePaint, Electronic Arts; DazzleDraw: Bröderbund Software Inc.; Publish It!: Timeworks; Apple and ImageWriter: Apple Computer, Inc. ©1989 Thunderware, Inc.



Circle 68 on Reader Service Card.



# PROGRAMS & PERIPHERALS

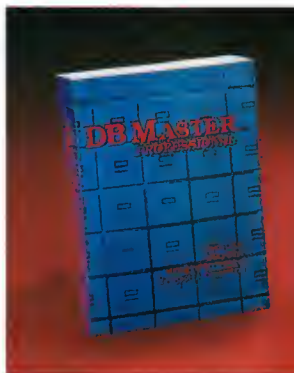


## Great Western/Gnarly Golf by Britannica Software

**Great Western Shootout** puts you in the wild, wild west. You're the sheriff - it's high noon - and those bandits are everywhere! Fast paced arcade action. **Gnarly Golf** puts you in the middle of the funniest fairways. Defy gravity, get flipped over tall buildings and die laughing. The wackiest golf game ever! From FANFARE the entertainment people of Britannica Software. ... **\$18 ea.**

## EDUCATIONAL SOFTWARE

<b>Barron's</b> Computer SAT Revised Version .....	34.	Writer Rabbit (//gs), Think Quick (//gs) or Rocky's Boots (//gs) .....	30.
<b>Britannica</b> Designasaurus .....	24.	Magic Spells (//gs) or Math Rabbit .....	24.
Designasaurus (//gs) or Revolution '76 (//gs) .....	28.	Gertrude's Secrets (//gs) .....	24.
Algebra 1 First Semester or Algebra 1 Second Semester .....	29.	Think Quick, Writer Rabbit or Rocky's Boots .....	30.
<b>Broderbund</b> Geometry (//gs) .....	55.	Reader Rabbit, Magic Spells or Math Rabbit (//gs) .....	24.
Science Tool Kit Master Module .....	50.	<b>Mindscape</b> Crossword Magic .....	34.
Science Tool Kit Module I, II or III .....	26.	<b>Orange Cherry</b> GS Talking Series: Animals, Dinosaurs, Numbers, First Write, Colors & Shapes, Reading Railroad, Addition & Subtraction, ABC's, Speller, Clock or Money .....	42.
Type! .....	19.	<b>Pelican Software</b> Dinosaur Days .....	24.
Where in the World is Carmen Sandiego? (//gs) .....	29.	Monsters & Make Believe Plus .....	29.
Where in the USA is Carmen Sandiego? .....	29.	POW! ZAP! KER-PLUNK! .....	29.
Where in Europe is Carmen Sandiego? (AP or C+) .....	29.	<b>Roger Wagner</b> HyperStudio (//gs) .....	95.
Where in the World is Carmen Sandiego? (//gs) .....	29.	<b>Sensible Software</b> Report Card II (//e & //gs) .....	37.
Where in Time is Carmen Sandiego? (AP or C+) .....	Special 29.	<b>Simon &amp; Schuster</b> Speed Reading Tutor IV or Typing Tutor IV .....	27.
<b>ByteWorks</b> Ugly Duckling (//gs) .....	32.	Typing Tutor IV (//gs) .....	34.
<b>Code</b> Music Class Courses 1-5 (Bundle) .....	149.	<b>Spinnaker</b> Kidwriter Gold (//gs) .....	31.
<b>Compu-Teach</b> Once Upon A Time II .....	25.	Facemaker: Golden Edition .....	27.
Joshua's Reading Machine (AP or //gs & C+) .....	25.	Kidwriter .....	27.
See the USA .....	30.	<b>Springboard</b> Atlas Explorer .....	32.
Once Upon A Time (//gs Talking) .....	30.	<b>Terrapin</b> Terrapin Logo Plus .....	79.
<b>Davidson &amp; Associates</b> Math Blaster Plus (//gs) or Word Attack Plus (//gs) .....	29.	<b>Tom Snyder Productions</b> Reading Magic Library: Jack and the Beanstalk or Flood, the Bad Guy .....	25.
Alge-Blaster Plus (AP or //gs) or Math Blaster Plus .....	Special 29.	<b>Weekly Reader</b> Stickybear Series: Sticky Bear ABC (5/4), Basket Bounce (5/4 or 3/2), Bop (5/4), Math I (5/4 or 3/2), Math II (5/4 or 3/2), Numbers (5/4 or 3/2), Opposites (5/4 or 3/2), Reading (5/4 or 3/2), or Shapes (5/4 or 3/2) (ea.) .....	24.
Grammar Gremlins or Read 'N' Roll .....	29.	Basic (5/4), Car Builder (5/4 or 3/2), Drawing (5/4), Map Skills (5/4 or 3/2), Math Word Problems (5/4 or 3/2), Music (5/4), New Talking Alphabet (3/2), New Talking Opposites (3/2), New Talking Shapes (3/2), Parts of Speech (5/4 or 3/2), Printer (5/4), Punctuation Rules (5/4 or 3/2), Reading Comprehension (5/4 or 3/2), Spellgrabber (5/4 or 3/2), Townbuilder (5/4 or 3/2), Typing (5/4 or 3/2) or Vocabulary Development (5/4 or 3/2) (ea.) .....	31.
Spell-It Plus (AP or //gs) or Math Blaster Mystery (AP or C+) .....	Special 29.		
Talking Math & Me (//gs) or Talking Reading & Me (//gs) .....	29.		
Talking Math Blaster Plus (//gs) .....	29.		
Word Attack Plus Spanish or French .....	29.		
Math & Me or Reading & Me .....	24.		
<b>Electronic Arts</b> Mavis Beacon Typing .....	30.		
Mavis Beacon Typing (//gs) .....	37.		
<b>First Byte/Electronic Arts</b> The Rhyming Notebook .....	29.		
<b>Grada Busters Corp.</b> Grade Busters 1, 2, 3 .....	57.		
Grade Busters 4, 5, 6 .....	42.		
<b>Great Wave</b> Kidtime II (//gs) .....	24.		
<b>Learning Company</b> Reader Rabbit (//gs) or Writing and Publishing Center (AP or //gs) .....	36.		



## DB Master Professional by Stone Edge Tech

**DB Master Professional** brings the power of a relational database manager to the Apple II. Anyone who needs to keep track of interrelated types of information can utilize **DB Master Professional** to automate record keeping. Relate up to 10 files for automatic data entry, posting and updating. Includes a full featured reports generator, mail merge, password security and AppleWorks compatibility. .... **\$189.**

## DISK DRIVES & HARD DISK SUBSYSTEMS

<b>American Micro Research (Micro Sci)</b> AMR D20/APS 20MB HD w/SCSI (//e & //gs) .....	599.	CT-80 Hard Drive (AP & //gs) .....	1075.
AMR D60/APS 60MB HD w/SCSI (//e & //gs) .....	829.	<b>CMS</b> "SD Series - Stack" Platinum //e, //gs 20 MB w/SCSI II card .....	585.
A5 D Half Height 5 1/4" Drive (//gs Daisychain) .....	155.	43 MB w/SCSI II card .....	769.
A5 Half Height (//e & //e) .....	129.	60 MB w/SCSI II card .....	850.
A5C Half Height (//e) .....	129.	<b>First Class</b> T6 60MB Tape .....	749.
Micro Sci C2 or C3 Controller .....	52.	D2 20MB HD (//e & //gs) .....	499.
<b>Applied Engineering</b> Transdrive 360K .....	199.	DF2 Compact 20MB HD (//e & //gs) .....	535.
Transdrive Dual 360K .....	289.	D4/T 40MB HD (//e & //gs) .....	835.
Transdrive Half Height 360K .....	109.	DF4 Compact 40MB HD (//e & //gs) .....	895.
Vulcan 20 (AP or //gs) .....	525.	D7/T 70 MB HD (//e & //gs) .....	965.
Vulcan 40 (AP or //gs) .....	675.	DF7 Compact 70MB HD (//e & //gs) .....	989.
Vulcan 100 (AP or //gs) .....	1339.	<b>Laser Computer, Inc.</b> Universal Disk Controller .....	45.
<b>Applied Ingenuity</b> Inner Drive 20 (AP or //gs) .....	455.	Laser DiskDrive (//gs) .....	105.
Inner Drive 40 (AP or //gs) .....	Special 599.	Laser 800KB Drive .....	185.
<b>Chinook</b> CT-20 Hard Drive (AP & //gs) .....	499.	Universal Disk Controller/800KB Bundle .....	219.
CT-20c Hard Drive //e .....	605.	<b>OHIO Kache</b> Fast-Kache SCSI 0K (256k model) .....	185.
CT-40+ Hard Drive (AP & //gs) .....	669.	Multi-Kache SCSI Option .....	69.
		Multi-Kache Vulcan Option .....	69.



## Where in Time is Carmen Sandiego? by Broderbund

Unlike your typical fly-it, drive-it, stomp-it game, this brand new release in Broderbund's award winning series relies on your most important reflex: your nimble mind. As a detective in **Where in Time is Carmen Sandiego** you must solve ingenious crimes that have been committed by the devious and cunning Carmen Sandiego gang. They can be anywhere in the last 1,500 years. .. **\$29.**

## COMMUNICATION SOFTWARE

<b>Activision</b> Teleworks Plus (//gs) .....	66.	<b>Checkmate Technology</b> ProTERM (//gs, //e, //c) .....	78.
<b>Applied Engineering</b> ReadyLink .....	75.	<b>CompuServe</b> CompuServe Starter Kit .....	24.
<b>Beagle Bros.</b> TimeOut TeleComm .....	45.	<b>L &amp; L</b> GBBS .....	79.
Point-to-Point .....	59.	<b>United Software Industries</b> ASCII: Express Pro: Prodos .....	72.
		ASCII: Express Mousetalk 1.5 .....	69.



## InnerDrive by Applied Ingenuity

**InnerDrive** is the original internal hard disk for the //gs. It comes with a heavy duty power supply, cooling fan and controller card. Already formatted, it requires about 5 minutes to install and it's ready to run. The leader in performance and affordability, it's the fastest and the lowest cost hard disk system. Uses standard GS/OS. Also available for the //e. **InnerDrive 20 (\$455), InnerDrive 40 (\$599).**

## PRINTERS

<b>Brother</b> M-1109AP (ImageWriter Comp.) .....	249.	<b>KXP-11911/M2</b> (240 cps) NLQ Mode .....	269.
<b>Laser Computer, Inc.</b> Laser 190A w/Serial Interface .....	239.	<b>KXP-10921</b> (240 cps) NLQ Mode .....	349.
<b>Panasonic</b> KXP-11801/M2 (192 cps) NLO Mode .....	199.	<b>Seikosha</b> Seikosha SP 1000 (ImageWriter Compatible) .....	235.

**VISIT OUR ON-LINE STORE  
ON GENie — GOPP**

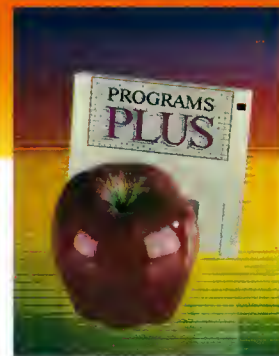


# OVERNIGHT

## WIN A JACKPOT BONANZA

Programs Plus is making an offer that you can't refuse — the chance to win a gift certificate for \$250.00 in merchandise.

It's easy to enter, simply place an order before December 31, 1989 (or complete form below and mail it in).



Specials good thru Dec. 31, 1989



### Spell-It Plus/Alge-Blaster by Davidson & Assoc.

These new easy-to-use programs help students of all ages improve their grades. And they're fun to use! With **Spell It Plus**, you can choose from 5 spelling activities — including an arcade-style game — covering over 1,000 commonly misspelled words. **Alge-Blaster Plus** helps you master 1st and 2nd semester algebra in one program and includes a challenging graphing game! ..... **\$29.**

### MODEMS

Anchor Automation 1200E.....	119	Practical Modem 2400 SA .....	179.
2400E.....	159	Prometheus Pro Modem 2400 (External) .....	255.
Applied Engineering		Pro Modem 2400G (Non Expandable) .....	179.
DataLink Modem 1200B		Pro Modem 2400A (Single Card) .....	139.
(Int II+, IIe or IIGs) .....	135.	Pro Modem 1200A (Single Card) .....	119.
DataLink Modem 2400B		Supra Corporation Supra Modem 2400 .....	129.
(Int II+, IIe or IIGs) .....	179	Supra Modem 2400AP .....	139.
Hayes Hayes 1200 Baud Smartmodem .....	295.	U.S. Robotics U.S. Robotics Courier 1200 .....	199.
Hayes 2400 Baud Smartmodem .....	429	U.S. Robotics Courier 2400 .....	335.
Practical Peripherals		U.S. Robotics Courier 2400E .....	379.
Practical Modem 1200 SA Mini.....	77.	U.S. Robotics Courier HST 9600 .....	689.



### ThunderScan by Thunderware

**ThunderScan** transforms any ImageWriter printer (except the LQ) into an inexpensive, high-quality scanner. All you need is a IIe, IIc, IIc+ or IIGs to turn any printed image into a 16 gray shade, high-resolution Apple II graphic - the highest resolution of any Apple II scanner. And ImageWriter and LaserWriter printer drivers allow for actual size. Now **ThunderScan** offers Apple IIGs specific software. .... **\$159.**

### PRINTER INTERFACE CARDS

Apple SCSI Card .....	115	Orange Micro	
Apple Super Serial Card .....	119	Grappler C/Mac/GS .....	79.
Applied Engineering Buffer Pro 32K .....	85	ProGrappler (Apple IIe or IIGs) .....	84.
BufferPro 128K.....	125	Serial Grappler Plus .....	62.
Serial Pro (II+, IIe, IIGs) .....	109	SMT No Slot Clock .....	42.
Parallel Pro (II+, IIe, IIGs) .....	77	Print Tech II (Parallel Interface) .....	37.
Applied Ingenuity		Thirdware Finger Print GS: Ver III (Incl	
GS Juice Plus 1 MB .....	235	Desktop Accessories-IIGs) .....	89
GS Juice Plus 2 MB .....	415.	Finger Print Plus (Specify Cables: Parallel,	
GS Juice Plus 4 MB .....	745.	Serial or ImageWriter II-II+ & IIe) .....	89



### BusinessWorks by Manzanita

**BusinessWorks** is the accounting package for small and medium size businesses. Combining G/L, A/P, A/R and inventory control in one flexible package. **BusinessWorks** lets you set up your accounts the way you want. Customize your reports to display the information you want displayed. **BusinessWorks** looks and acts like AppleWorks. **BusinessWorks** is the accounting solution for the Apple II. .... **\$269.**



### TimeOut ReportWriter by Beagle Brothers

**TimeOut ReportWriter** is a relational report generator that turns AppleWorks into a powerful business tool! Generate invoices, billing statements, order forms and more, right inside AppleWorks. Information from up to 11 different database, spreadsheet, and word processor files can be used by a single report - no more limitations because AppleWorks is too small! And your reports will print out exactly how they look on the screen. .... **\$48.**

### BLANK MEDIA

3 1/2" Blank Diskettes		Maxell 3 5" DS/DD (box of 10) .....	16.
BASF 3 1/2" DS/DD (box of 10) .....	15.	Verbatim DS/DD (box of 10) .....	15.
Bulk (Sony) 3 1/2" DS/DD (box of 10) .....	14.	3M 3 5" DS/DD (box of 10) .....	20.
Centech 3 1/2" DS/DD Color Disks (box of 10) .....	19	C. Itoh 3 5" DS/DD Color Disks (box of 10) .....	25.
Sony 3 5" DS/DD (box of 10) .....	15.		



### Medley by Milliken Publishing

**Medley**, a powerful desktop publishing program gives you word processing, page layout, and graphics. Twenty fonts, a dictionary and thesaurus are available with Medley's word processor. Medley's page layout program automatically wraps text around any object. Artwork and digitized pictures import easily into **Medley**, or create original art using Medley's powerful art tool. For the IIGs. .... **\$79.**

Name \_\_\_\_\_  
Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

#### Contest Rules

1) No purchase necessary to win. 2) Prize will be one gift certificate only. 3) Original entries only. 4) All entries must be received by December 31, 1989. Sponsor not responsible for late, lost or misdirected mail. 5) Winner selected by Independent Certified Public Accountant for Programs Plus in random drawing. All decisions are final. 6) Odds of winning depend on number of entries. 7) Winners responsible for taxes. 8) Programs Plus will announce winner on or about January 5, 1990. 9) Winners notified by mail. 10) If unable to contact winner, an alternate will be selected by random drawing. 11) Contest is open to U.S. residents except where prohibited by law. 12) Employees of Programs Plus and suppliers are not eligible.



FAX: 203/381-9043  
Inquiries: 203/378-3662  
Canada: 1/800/344-7753  
75 RESEARCH DRIVE  
STRATFORD, CT 06497  
**1/800/832-3201**



# REVIEWS

will outrun Teleworks' buffer, forcing a lot of corrections. Also, the Edit Memo command, which lets you edit text files, sometimes hangs the system.

## DIALING DILEMMAS

Some marginally Hayes-compatible modems didn't want to work. The solution is to include the characters *ATDT* at the beginning of each phone number you dial. (Use *ATDP* if you have old-fashioned pulse dialing.)

Finally, auto-dialing has only rudimentary support—you can auto-dial only four times without having to start the process over. Getting through to a popular BBS can sometimes take an hour, so that's 60 minutes wasted with Teleworks.

## WHO'S CALLING?

Despite its numerous operational troubles, I came away liking Teleworks. In the middle of a work session at the IIGS, going on line doesn't seem as big an interruption if you stay in the same desktop environment. Teleworks is the only terminal software to offer the IIGS desktop, and it's a friendly implementation overall.

Will I use Teleworks every day? Not likely—not now. Activision needs to turn a crack programmer loose on it for a couple of weeks. Teleworks would then get a full recommendation. What comes to mind is Activision's release of the original Paintworks back in the early days of the GS. You couldn't get a lick of serious work done with the program, but everybody bought it because nothing compared.

This won't suffice with telecommunications. Four years ago, ASCII Express had more power than Teleworks does now. And today's ProTERM is just as laden with features. Telecommunications has always been a strong suit with the Apple II, and the leading terminal programs—ProTERM, MouseTalk, Talk Is Cheap—are quite mature. Therefore, you can't really pit the current Teleworks Plus against those competitors.

## CLOSE CALL

The features that count most—elegant message handling and file transfer—are troubled. Teleworks Plus is tantalizingly close to breaking new ground, but for now the ball is in Activision's court.

**Joe Abernathy**  
Houston, TX

## MONSTERS & MAKE-BELIEVE



**LEARNING LAB SOFTWARE PUBLISHING,**  
21000 Nordhoff, Chatsworth, CA 91311,  
(800) 247-4641, (800) 222-7028 (CA)

Graphics writing program;  
128K Apple IIe, IIc, IIc Plus, IIgs; color monitor  
and printer recommended; \$39.95 non-talking  
version; \$49.95 talking version

Rating: ♦ ♦ ♦ ♦

**M**onsters are make-believe, right? If creative writing is "make-believe" writing, then the two seem to fit together quite naturally. Monsters & Make-Believe provides a way for children to exercise their imaginations while learning to write. The cheerful little monsters that children create with the program will stimulate their young minds and motivate them to imagine stories about their creatures.

Monsters & Make-Believe was written with the needs of children in mind. The manual, for example, has one section headed "For Kids Only." Third-graders, who should have no trouble with most of the program's operations, can easily understand these chapters. Within minutes of receiving this package, my 9-year-old daughter was already in the drawing routine. She finished her first monster by adding a speech bubble containing some witty saying. Without any confusion, she sent it to the printer and went on to another drawing.

Monsters & Make-Believe lets children design and build monsters from the wide variety of bodies, heads, legs, arms, eyes, noses, and mouths displayed on screen. Children can select any parts from the assortment, and only their imaginations limit how they should arrange the pieces. Kids can put their monsters together against several backgrounds, including a scary castle and a blank screen.

Kids move the monster parts around on screen with the arrow keys. One nice feature here is variable speed; press the 9 key before ▶

## AT A GLANCE

Continued

**TimeOut SpreadTools** (November 1989, p. 38, by Gregory Glau), Beagle Bros, 6215 Ferris Street, San Diego, CA 92121, (619) 452-5500; 128K Apple IIe, IIc, IIgs, AppleWorks 2.0 or later; \$59.95

Rating: ♦ ♦ ♦ ♦ ♦

Add SpreadTools to your AppleWorks startup disk and it's always available when you press Open apple-Escape. When you do, a menu overlays whatever you're working on and displays the following options: Analyzer, Block Copy, CellLink, Data Converter, Formula to Value, Quick Columns, Rows end Columns, and Utilities. You can load any or all of these SpreadTool applications into memory to eliminate disk-access time. You'll use only about 20K of working memory if you load them all at once.

TimeOut SpreadTools includes a variety of useful functions. Block Copy is a wonderful addition to AppleWorks, and the ability to link worksheets and extract data from several grids is alone worth the price of SpreadTools.

**Math Blaster Plus** (November 1989, p. 98, by Jack Emberly), Davidson & Associates, 3135 Kashiwe Street, Torrance, CA 90505, (800) 556-6141; 128K Apple IIe, IIc, IIgs; \$49.95

Rating: ♦ ♦ ♦

Meth Blaster Plus, a big cousin to the old Math Blaster, boasts better graphics, more problems, five activities instead of four, and new recordkeeping features. It earns an A from kids as an arcade game that lets them blast answers off the screen. The real targets, though, are the major skill areas developed in grades 1-6: addition, subtraction, multiplication, division, decimals, and fractions.

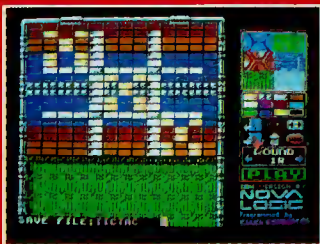
The subject areas are nicely divided into six stages with problem difficulty reflecting the various grade levels. The fractions activity, for instance, covers reducing common fractions, renaming improper fractions, adding and subtracting fractions, multiplying common fractions, and finding percentages. □



# RAGE!

## DOH RAGES ON IN ARKANOID II!

Arkanoid was never like this! Arkanoid II is here with more menace and explosive action than ever. Loaded with powerful weapons, 67 outrageous force barriers, and intense graphics and animation, it takes lightning-fast reflexes and superior strategy to survive! But survival is just the beginning.



*With the Arkanoid Construction Set, you create the game! IBM EGA/VGA screen.*



### YOU TAKE CONTROL!

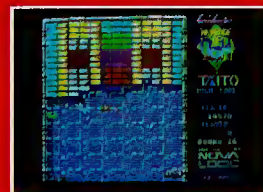
The new Arkanoid Construction Set™ gives you the tools to master the game. Build complex force barriers. Create exciting and original levels of play. Challenge the force of DOH! Arkanoid Construction Set available for Apple IIGS, IBM, and IBM compatible personal computers.



*Smash 67 action-packed levels. IBM EGA/VGA screen.*



*Power up with super-charged energy capsules. Apple IIGS screen.*



*Blast through the force of DOH. Tandy 1000 screen.*



If you cannot find this product at your local retailer, Visa/MasterCard holders can order direct anywhere in the United States by calling toll free 1-800-663-8067.

Taito®, Arkanoid®, Revenge of DOH®, and Arkanoid Construction Set™ are trademarks of Taito America Corporation. ©1989 Taito America Corporation. All rights reserved. IBM, Tandy, and Apple IIGS are registered trademarks respectively of International Business Machines, Inc., Tandy Corporation, and Apple Computer, Inc.

Circle 110 on Reader Service Card

# REVIEWS

the arrow key and the part will move fast. Press *I*, and the part moves in tiny steps for precise positioning.

Each part a child selects, however, covers up any previous pieces placed on screen, so monster assembly can easily go awry. A face placed on screen, for example, will hide a pair of eyes that were on screen first. This can be discouraging for young designers. Part of the problem is that the menu of part categories is alphabetical—arms, bodies, and eyes are listed before heads. A child will tend to choose the first part listed, although the manual suggests beginning with the body.

A two-sided, full-page *Contents at a Glance* sheet shows all parts and props available. This quick-reference card makes selecting parts easy, and a fast review will give a good idea of how the monster should look.

You'll see only one arm, leg, and ear of each design on screen. Pressing either *H* or *V* will flip the part horizontally or vertically; then kids can place them in the right location. This way, both right and left parts are available.

After a child has completed a monster, he or she may select one of several speech

bubbles. Once the bubble's in place, kids can type a message within that space. They may also enter text on the blank background for use in picture storybooks. Youngsters can make text changes and corrections with the mini word processor. When satisfied with their creation, they can save the final versions of their monster drawings and stories to disk for future use.

It's not exactly Boris Karloff, but with an Echo Board or a Cricket speech synthesizer and *Monsters & Make-Believe Plus*, a speaking version, you can make the program say the on-screen words. Just remember it's synthesized speech; your Apple may have trouble pronouncing new words. You can encourage children to hear it as "monster talk."

Parents may have to help kids with the talking version. Sections of the manual guide you through the routines and utilities that may be confusing to children. The most complicated part is controlling the speech routines. You may have to enter some words into the program phonetically to ensure proper pronunciation. Basically, though, you can hand *Monsters & Make-Believe* to your children without a whole lot of help. If they understand

the basics of how to load and start the computer, it should be no problem.

*Monsters & Make-Believe* includes utilities to format data disks and delete files. The program disk also contains the usual setup options that let you customize the program to suit your needs. You can specify the type of printer, interface, and interface slot. The software supports 53 printers with 68 interfaces.

Learning Lab recommends a printer; it's certainly a must. Printing a child's work is so important that you're not taking full advantage of the program without a printer. You can print completed designs in one of several formats, including a reduced size and a full-page size.

What I especially liked about *Monsters & Make-Believe* is that it encourages children to use their creations after printing them. For example, kids can use the printed pictures for coloring sheets. Reduced drawings placed on a sheet of paper make unique stationery. Kids can also mount their little monsters on stiff cardboard to make mobiles, puppets, or posters. The manual explains how to cut out printed monsters and use cotton and paper

## NEW APPLEWORKS® ENHANCEMENTS

### ULTRA.PAYROLL™

A complete payroll program for 1990 and beyond that operates completely within AppleWorks 2.0, 2.1, or 3.0.

#### KEY FEATURES:

- Generate your entire payroll with one keystroke (1-50 employees)
- Gross pay, net pay, federal and state income taxes, social security, pension, health, and up to 3 other deductions
- Calculate your tax liabilities and all deposit requirements with one keystroke
- Change any employee's withholding factors at any time
- Print payroll by employee, date, YTD, or tax liability

#### SYSTEM REQUIREMENTS:

Apple 2E/2C/2C+/2GS  
Appleworks 2.0/2.1/3.0 (Specify)  
75K Appleworks DeskTop Minimum

\$65 plus \$5 Shipping & Handling

### ULTRA.INVOICE™

A store, service, or mail order invoicing program that operates completely within AppleWorks.

#### KEY FEATURES:

- Uses only these command keys:  
N=New F=Find C=Customer  
(Space)= Specify Item O= Order  
T= Re-Total P= Print invoice  
Q= Quit customer and save the customer's invoice as well as sales and inventory records
- Calculates invoice number, state and city sales tax, discounts, shipping and/or handling charges, amounts, subtotals, totals, refund, amount due, shipping zones, etc.
- Records and reports daily, monthly, quarterly, or annual sales
- Records and reports items removed from inventory

#### SYSTEM REQUIREMENTS:

Apple 2E/2C/2C+/2GS  
AppleWorks 2.0/2.1/3.0 (Specify)  
128K AppleWorks DeskTop Minimum

\$75 plus \$5 Shipping & Handling

### OTHER ENHANCEMENTS

AppleWorks 3.0	\$180.00
Data Link 2400	175.00
GS-RAM Plus (OMEG)	131.00
GS-RAM Plus (1MEG-AE installed)	315.00
GS-Transwrap	300.00
RAM Chips-256K (8)	45.00
RAM Chips-1MEG (8)	125.00
Ramfactor (2E) 256K	195.00
RAMWorks III (2E) 256K	162.00
TimeOut DeskTools I (AW3.0)	29.00
TimeOut DeskTools II (AW3.0)	29.00
TimeOut FileMaster (AW3.0)	29.00
TimeOut Graph (AW3.0)	50.00
TimeOut MacroTools I (AW3.0)	16.00
TimeOut MacroTools II (AW3.0)	16.00
TimeOut PowerPack (AW3.0)	29.00
TimeOut ReportWriter (AW3.0)	45.00
TimeOut SideSpread (AW3.0)	29.00
TimeOut SpreadTools (AW3.0)	34.00
TimeOut SuperFonts (AW3.0)	40.00
TimeOut TeleComm (AW3.0)	40.00
TimeOut Thesaurus (AW3.0)	29.00
TimeOut UltraMacros (AW3.0)	34.00
Transwrap 2E	131.00

**PAYMENT:** Checks/VISA/MC/MONEY Order/PO-Schools Only.  
Nebraska Residents—Add City Tax (If Applicable).

**WARRANTY:** Defect-free for 30 Days, Our Shipping Date.  
Sorry, We Cannot Guarantee Non-Apple Compatibility.  
Items purchased in error subject to 20% restocking.

**Returns Require Prior Authorization** - Write or Call (402) 331-7312

**SHIPPING:** UPS GND (48)—\$4+\$1.00 per item.

**Credit Card Ordering Only:** 1-800-323-5757

**Price Quotes / Inquiries / Returns / Other:** 1-402-331-7312

**M-F: 9:00 a.m. - 5:30 p.m. / Saturday: 9:00 a.m. - 4:00 p.m. CT**

Prepared October 1989 PRICES SUBJECT TO CHANGE (#89-12)

**TRIAD SOFTWARE PRODUCTS • 105 E. Second St. • Papillion, NE 68046 • (402) 331-7312**



cups to turn them into "Fuzzy Friends."

The program comes on one 5¼-inch double-sided disk. If you have only one drive, the occasional need to flip the disk may irritate you. It bothered me until I found that you can duplicate side 2 (the Art Disk) with any copy routine such as Copy II Plus or the special Apple utilities. The manual fails to mention this. Side 1 is copy-protected, but side 2 isn't. Save yourself some trouble—make a copy of the Art Disk and place it in drive 2 before you start. If you have a 3½-inch disk drive, you can exchange the 5¼-inch disk for a 3½-inch at no cost.

Any parent who wants to further his or her children's interest in writing should consider *Monsters & Make-Believe*. *Monsters* motivate young minds, and the stories your kids can come up with may amaze you. The price is fair and the program is easy for children to use. While it won't make every child a creative writer, *Monsters & Make-Believe* will stimulate the urge to write and help develop a flow of ideas in imaginative children.

**Jerry D. Greer**  
**Park City, UT**

## KIDWRITER GOLDEN EDITION

**SPINNAKER SOFTWARE,**  
**One Kendall Square, Cambridge, MA 02139,**  
**(617) 494-1200**

Children's graphics word processor;  
768K Apple IIGS, printer required; \$49.95

**Rating: ♦ ♦ ♦ ♦**

**K**idwriter Golden Edition is more than just a word processor for children. It lets them design colorful storybooks complete with backgrounds and illustrations, as well. Youngsters aged 6–10 can print individual pages or entire books, or present the pages as a colorful slide show with musical accompaniment.

### STORYLAND SETTINGS

Kidwriter is very simple to use. Children begin by clicking on the Background button at the bottom of the screen and scrolling through 18 possible background scenes. Options include a stage, alpine and jungle settings, the interior of a cave, two space scenes, a tropical island, and the interior of a house.

The program also includes a blank background, so youngsters can create their own.

Once they decide on a background, kids can click on the Picture button to call up an icon-based clip-art menu. Youngsters can choose such themes as transportation, weird creatures, vegetation, animals, people, letters, and numbers.

Selecting a picture involves first clicking on a category, then clicking on the up- or down-arrow key to scroll through the list. As you scroll, images appear in the display window in the lower left corner of the screen. Children may also flip the pictures horizontally by clicking on the Flip Picture option.

After finding a suitable picture, make your selection by clicking on it in the preview window. Then you can move your picture around the scene until you're satisfied with its location. Another click freezes the image in position.

When the cursor's in the shape of a pointer, you can reselect the picture, move it to a new location, or drag it completely from the screen. If the cursor's in the shape of a box, you must first click on the ABC icon at the bottom of the screen to switch to image-grabbing mode. ▶

Continued on p. 118

## If you love Print Shop, you'll love Big Red™

### PLUS

Do you love Print Shop? We do! That's why we created **PLUS**, the Print Shop Lovers' Utility Set. **PLUS** is a set of utility programs designed for the Apple IIe/IIc® version of Print Shop. **PLUS** reads the directory of any disk containing Print Shop graphics and prints a catalog sheet showing every graphic with its name. You can print catalog sheets of borders and fonts, too.

**PLUS** also features a Label Maker, Bookmark Maker, and five other utilities. To order **PLUS**, send **\$39.95** to Big Red Computer Club. Ask for product number **PS01**. (64K required.)

Print Shop is a trademark of Broderbund Software. Apple IIe, IIc, and IIGS are trademarks of Apple Computer, Inc. AppleWorks is a trademark licensed to CLARIS Corp.

### PLUS-GS

**PLUS-GS** is a set of utility programs designed especially for Print Shop IIGS. In addition to printing catalog sheets of multi-color graphics, borders, fonts, pixels, and patterns, **PLUS-GS** converts GS fonts to Print Shop fonts. You can also create your own multi-color borders and patterns, capture Print Shop graphics from SHR pictures, and convert IIe graphics and borders. Order product number **PS51** for **PLUS-GS**. Price is **\$39.95**. (512K required.)

### Labels, Labels, Labels

**LABELS, LABELS, LABELS** turns Print Shop graphics, borders, and fonts into unique, colorful labels. Create your own custom labels for videotapes, notebooks, disks, envelopes, and anything else you can imagine. Design your own postcards, price tags, badges, and name tags, too. Take advantage of the built-in database or merge labels with an AppleWorks® database file.

**LABELS, LABELS, LABELS** prints in both b&w and color and supports most popular dot-matrix printers. **LABELS, LABELS, LABELS** is **\$39.95**. Ask for product number **PS03**. (64K required, 128K for color printing.)





# Roger & Barney wish you the best and bring you...

## INTRODUCING:

## BARNEY BUCKS

with every \$100 (in product) ordered, you'll receive **ONE BARNEY BUCK** redeemable for valuable merchandise.

Get even more! \$300 orders receive **FIVE BARNEY BUCKS**; \$500 orders receive **NINE BARNEY BUCKS**.

Details available with every order.


## APPLIED ENGINEERING

(Additional AE items in stock)

"0" K Boards now available  
Call

Timemaster HO  
\$67

Z-RAM Ultra 1, 256K  
\$143


Z-RAM Ultra 2, 256K   
\$197


Z-RAM Ultra 3, 256K  
\$258

CS-RAM Ultra, 256K  
\$169

CS-RAM Ultra, 1 Meg  
\$259

CS-RAM PLUS, 1 Meg  
\$239 (limited quantity)

RamWorks Basic, 256K   
\$131

RamWorks III, 256K   
\$143

RamWorks Expander  
256K \$116  
512K \$158  
1 Meg \$174  
2 Meg \$274

## APPLIED ENGINEERING

Color Link RGB Option  
\$94

Ram Factor, 256K  
\$178

Ramcharger  
\$129

16K Ram Card  
\$74

Viewmaster 80  
\$119

Transwarp (II+, //e Accelerator)  
\$124

Phasor (II+, //e Stereo Card)   
\$124

DataLink 2400 (Internal Modem)  
\$174

CS RamKeeper (GS Battery B/U)  
\$139

Slot Mover   
\$31

Ram Express, 256K (//c+)  
\$201


Ram Express Clock Option  
\$44

Sonic Blaster (GS Stereo Card)   
\$94

Parallel Pro (Parallel Card w/Cable)  
\$74


Buffer Pro, 32K (for Parallel Pro)  
\$81

Transwarp GS (GS Accelerator)  
\$289

PC Transporter (640/768K)   
\$359

PC Transporter GS installation kit  
\$37

PC Transporter //e installation kit  
\$29

Ext. 80 Col Card   
\$54

IBM-style Keyboard  
\$101

Vulcan 20 Meg Int HD  
\$479 (specify computer)

Vulcan 40 Meg Int HD  
\$619 (specify computer)

Vulcan 100 Meg Int HD  
\$1249 (specify computer)

## APPLIED ENGINEERING

TransDrive  
(for PC Transporter)

\$189 Single

\$286 Dual

\$109 5.25 Add on 

Audio Animator  
\$174

Easylink Terminal Software  
\$64

Conservor (GS Surge Protector & Fan)  
\$87

Fastmath (//+, //e, GS Math co-processor)  
\$129

Serial Pro  
\$101

Power Supply (//+, //e)  
\$58

Meiji 5.25 1/2 Height TransDrive

Single \$139

Dual \$209

Add-on \$99

## LASER

Laser 128EX Computer  
\$419

Laser 128 Computer  
\$359

Laser 190 A  
\$189

Check out this  
awesome new  
//GS Game!

2088  
THE CRYLLAN  
MISSION

If you like Star Trek  
you'll love this!

List \$69.95  
NOW \$39

Matt

## BEAGLE BROS

TO Quicksell  
\$39

TO Superfonts  
\$39

TO Graph  
\$49

TO Desktools  
\$29

TO Ultra Macros  
\$34

TO Sidespread  
\$29

TO Filemaster  
\$29

TO Thesaurus  
\$29

TO Power Pack  
\$29

TO Desktools II  
\$29

TO Spreadtools  
\$34

TO Macrotools I or II  
\$16/ea

TO Report Writer  
\$44

TO Telecomm   
\$39

GS Font Editor  
\$29

Program Writer  
\$29

Beagle Write   
\$44

Beagle Write GS  
\$57

## GLEN BREDON

Prosel 8  
\$37

Prosel 16  
\$54



### ORDERS ONLY:

1-800-438-2883

FAX: 1-619-274-2440

15% (\$15/min.) restocking fee  
on refunded items only

Authorized Applied Engineering Dealer

Roger  
Coats

P.O. BOX 171466  
SAN DIEGO, CA 92117



WE ACCEPT  
SCHOOL  
PURCHASE  
ORDERS

Circle 90 on Reader Service Card

WE ACCEPT: VISA and MasterCard • Bank Wires • School Purchase Orders • Certified Checks • Money Orders • NO PERSONAL or COMPANY CHECKS  
• Sorry, no shipping, handling, or insurance refunds • Not responsible for product compatibility • Prices subject to change without notice • NO C.O.D.s



# SEASONS DEALS



## SOFTWARE

(Sorry, no software refunds)

Appleworks 3.0  
\$174

Appleworks G5  
\$194

DB Master Professional  
\$189

RAMUP 4.0 (RAMdisk Utilities)  
\$29

Repair Works (Repair AW Files)  
\$29

EASY DRIVE (Program Selector)   
\$54

Mini Paint (G5 Paint Program)  
\$19

ProTERM v2.1   
\$79

Publish It 2!   
\$79

Graphics Exchange  
\$29

Soft Switch  
\$34

HyperStudio  
\$89

Quicken  
\$32

Copy II Plus   
\$24

Musicwriter LE/SE/Pro (//e, G5)  
\$79/\$199/\$399

Design your own Home Series  
Architecture  
Interiors  
Landscape  
\$47/ea (//+, e, c)  
\$59/ea (G5)

**FOR A  
COMPLETE  
PRICE LIST OF  
OUR PRODUCTS,  
FILL OUT THE  
READER SERVICE  
CARD IN THIS  
MAGAZINE**

## DISKETTES

SONY 3.5  
Diskettes  
Pack of 10  
\$15



**IF  
YOU  
DON'T  
SEE IT,  
CALL US!**

## SOFTWARE

G5/OS v5.0  
\$41

Tomahawk (G5)  
\$29

Bag of Tricks 2  
\$39

Print Shop (G5)  
\$37

Xenocide (G5)  
\$31

Paintworks Gold (G5)  
\$59

## AMR

AMR 20 Meg HD w/SCSI  
\$569

AMR 30 Meg HD w/5C51 (//e, G5)  
\$639

AMR 43 Meg HD w/5C51 (//e, G5)  
\$749

AMR 60 Meg HD w/5C51 (//e, G5)  
\$799

AMR 3.5 Drive (//c+, G5, Mac, PC  
Transporter)  
\$189

AMR 3.5 Controller  
Card (//e)  
\$44

AMR 45 Meg  
Removable Media  
w/5C51 (//e, G5)  
\$989

45 Meg Removable  
Cartridge  
\$109

## CHIPS

**All Memory Chips Carry  
a 5-Year Warranty!**

CHIPS:

(set of 8) 256K, 120ns  
\$42

(set of 8) 1 Meg  
100 or 120ns  
\$100

(set of 2) 256K X 4  
\$30

## APPLIED INGENUITY

(In Stock)

GS Juice+, 1 meg  
\$169

Inner Drive, 20 Meg (Pro DOS/DOS  
Compatible)  
\$439

Inner Drive, 40 Meg (Pro DOS/DOS  
Compatible)  
\$589

## HARDWARE

Supra 2400 Baud External Modem  
\$109

Numeric Keypad (//e)  
\$49

Numeric Keypad (//c)   
\$99

Kensington System Saver G5  
\$69

Meiji 5.25 1/2 Height Drive (//+, //e)  
\$80

Meiji 5.25 1/2 Height Drive (//c, GS)  
\$95

Meiji 5.25 1/2 Height Drive (//c, GS)  
Daisy Chainable  
\$119

No Slot Clock Pro (Apricorn)  
\$49

Parallel Interface Adapter (Apricorn)  
(//c)  
\$49

Parallel Interface (//c+, Mac,  
GS (ApriCord 8)  
\$59

Thunderscan (//e, //c, GS Scanner)  
\$149

AB Switchbox (5er/Par)  
\$29

ABCD Switchbox (5er/Par)  
\$39

AB Switchbox (Mini 8)   
\$38

ABCD Switchbox (Mini 8)  
\$48

//e Fan and Surge Protector  
\$34

## OUR CUSTOMERS SPEAK...

**"You are to be commended  
for your service. I truly  
appreciated it."**

**-- Charles Parnell  
McGregor, TX**

## HARDWARE

G5 Sound System   
2 speakers & 15 watt amp  
\$119

Prairie Pwr System, Battery  
Pack (8 HR, UP5) & Case  
\$119

//e Enhancement Kit  
\$68

Kensington Turbo Mouse ADB  
\$119

Cables (all types, 10 ft)  
\$15

CH Mach II Joystick  
\$35

CH FlightStick  
\$47

Apple ImageWriter II  
\$459

FingerPrint G5i vll   
\$79

RAMPro GS  
\$159

**don't miss out on  
ROGER'S DEAL  
OF THE MONTH**

**AMR 45 meg  
removable hard drive  
with SCSI**

**1 yr. warranty  
list \$1695**

**NOW \$989**

## BARNEY'S DOG DAY SPECIALS



**Look for Barney's Bone next to a  
price point. Order that product  
on any Wednesday between 11-  
2PM(PST) You pay UPS Ground  
Shipping, We Ship it 2nd-day AIR!**

**Roger  
Coats**

P.O. BOX 171466  
SAN DIEGO, CA 92117



## PRICE QUOTES & TECHNICAL SUPPORT

**1-619-274-1253**

**8am - 5pm PST**

**Monday-Friday**

**Committed to value since 1985**



# GAME ROOM

## GREAT WESTERN SHOOTOUT

**BRITANNICA SOFTWARE,  
345 Fourth Street, San Francisco,  
CA 94107,  
(800) 572-2272**

Arcade action;  
512K Apple IIGS, 3½-inch drive; \$29.95

Rating: ♦ ♦ ♦ ♦



I have mixed emotions about reviewing Great Western Shootout. My Massachusetts-liberal, Kennedy-generation background forces me to think there's something nasty about a game in which your only goal is to shoot people. Then again, you *are* aiming only for the bad guys; if you hit an innocent bystander you lose points. And the setting is the Old West—after all, John Wayne didn't hesitate to waste a few dozen desperadoes when necessary.

Britannica's Shootout (from its Fanfare line) is a simple-but-fun arcade game. You don't waste any time reading documentation, assigning attributes to characters, or doing any of those other things that make a lot of people (myself included) avoid fantasy role-playing games. If you can point and click with a mouse,

you'll be blowing away bad guys in minutes.

After you select a one- or two-person game, you're greeted by Sheriff Oldswell, who gives you background on your upcoming showdown. After each round (if you survive) you return to the sheriff's office. He continues to send you on suicide missions until the inevitable happens and you're pushing up daisies on Boot Hill. After you take a few rounds of buckshot in your hide, you'll start to wonder why the sheriff isn't out there with you. If you do tire of Sheriff Oldswell's words of wisdom, you can bypass them by pressing the escape key when he appears on screen.

As you confront outlaws, you have only three things to worry about:

- Make sure you're not killing innocent people. (The bad guys wear black hats.)

- Monitor your supply of ammunition, which isn't a problem until you get into the later rounds.

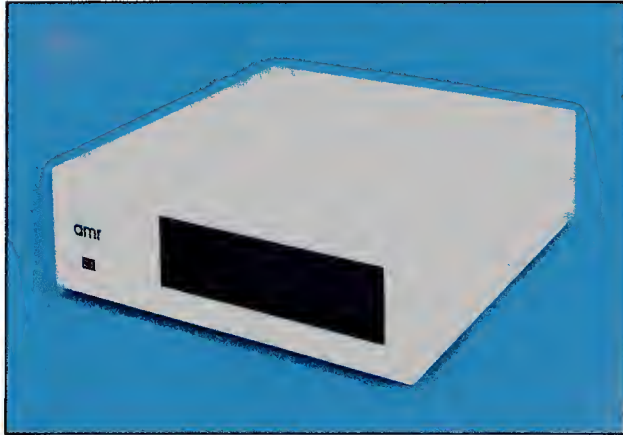
- Stay alive. The best way to do that is to shoot the bad guys before they shoot you. A thermometer lets you know when you've been hit; when it runs out of red, you're dead. Periodically, a little red cross appears on screen; clicking on it boosts your health.

Great Western Shootout isn't a complicated game by any means. You're probably not going to want to play it for hours on end—but if you've had a bad day and just want to blow the heads off of a few dozen hooligans, this game is worth a shot.

**Dan Muse**  
*inCider staff*

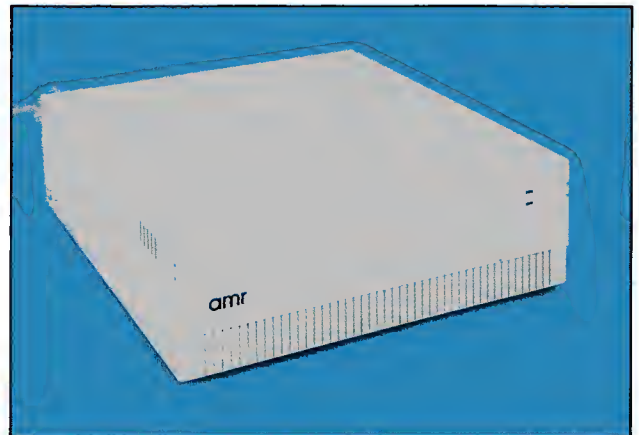


# AMERICAN MICRO RESEARCH YOUR SOURCE FOR STORAGE DEVICES



The AMR 45MB removable SCSI drive offers unlimited storage and is the fastest unit available with an access time of 25 milliseconds. It can be used as a primary or backup device and works with Apple IIe, IIGS and Macintosh. 1 year warranty.

**AMR's Designer Series** of external SCSI hard drives will enhance the performance of your Apple IIe or IIGS. We offer a complete line which includes storage capacity along with the speed and dependability to fit every users needs. 1 year warranty. 20, 40, 60 Megabyte Models Available.




**AMR your #1 source** for the Apple II family of computers has now made available a 3½" 800K daisychainable floppy disk drive. The AS800 is completely compatible with Apple IIGS, IIC Plus and Macintosh; and with our C3 disk interface card the AS800 works as a single or daisychainable drive for Apple IIe. 1 year warranty.

For more information contact your local dealer or for a dealer nearest you contact:

**AMERICAN MICRO RESEARCH**  
13505 Yorba Avenue, Unit A; Chino, CA 91710  
Tel: 714/590-3900 Fax: 714/590-3643

Apple IIe, IIC Plus, IIGS and Macintosh  
are registered trademarks of Apple Computers.

 Apple Computer, Inc.  
recognizes your achievement and awards recertification to  
*American Micro Research*  
for producing quality Apple third-party products.

Congratulations!!

## TIP SHEET

This month we've got a few tips for using that all-important peripheral, the joystick. When driving a Porsche 959 (as in Accolade's **The Duel: Test Drive II**) or flying an Apache AH-64A attack helicopter (as in **Tomahawk** from Data-soft), it pays to center your joystick.

Games that include joystick-centering routines can help. Titles from Epyx (**California Games**, **The Games: Winter and Summer Editions**, **Final Assault**, and others) include sequences that take care of your stick for just that game. What that means is that the game asks you to push the stick to the upper left, center, and lower-right corner and click a button. You don't touch the alignment adjusters. This helps for the game you're playing, but may not do the trick for the next one you boot up.

**Ski Craze**, from Baudville, has a centering procedure that shows you a diagram and the spot where your joystick is pointing. If it's off, correct it by aligning both vertical and horizontal adjustments. This is the most functional joystick first-aid I've found built into a game.

Joel Liacar of Foster City, California, has this tip for adding more firepower to your Hellcat dive bomber in Broderbund's **Wings of Fury**. Using the joystick to choose your weapons, move it all the way to the upper left-hand corner while pressing the left-arrow key continuously. This mixes up the weapon-selector box and the indicator (which shows your chosen weapon) in the lower left-hand portion of the screen.

If you've timed it right, the bomb symbol will appear in the selector and indicator boxes, but the program will choose 30 rockets instead of bombs. The same procedure works when the indicator symbol is a bomb and the selector symbol is a rocket: You'll get 30 torpedoes. Timing this wrong could give you one rocket, one bomb, or 15 torpedoes, so it takes some practice.

Remember, keep those hints coming. Write to Tip Sheet, c/o *inCider*, 80 Elm Street, Peterborough, NH 03458. □

## JACK NICKLAUS PRESENTS THE MAJOR CHAMPIONSHIP COURSES OF 1989



ACCOLADE,  
550 South Winchester Boulevard, Suite 200,  
San Jose, CA 95128, (408) 985-1700

Golf-simulation supplementary disks;  
512K Apple IIGS, Jack Nicklaus' Greatest 18  
Holes of Major Championship Golf; \$19.95

Rating: ♦ ♦ ♦ ♦

**G**olf is a great sport because you're outside walking around in a pastoral landscape. Computer golf lacks the fresh air, the exercise, and the scenery, so why do people like it as much as the real thing?

For one thing, it's easier. Any honest person who has ever tried to whack a 2-inch ball 400 yards into a 4-inch hole will admit that the last entertainment we need is a "realistic" golf simulation, thank you very much.

Computer golf's real charm, though, is that it gives us the simulated chance to play courses where we couldn't dream of even caddying in real life. Jack Nicklaus Presents the Major Championship Courses of 1989 invites us to play the Oak Hill Country Club (Rochester, New York), the Royal Troon Golf Club (Scotland), and the Kemper Lakes Golf Club (Hawthorn Woods, Illinois)—the sites of the U.S. Open, the British Open, and the PGA Championship in 1989.

The price is right. The Public Domain Exchange (Santa Clara, CA) sells 24 courses for Mean 18 for \$36, but they don't work with the superior Jack Nicklaus' Greatest 18 Holes of Major Championship Golf. (Are programmers at Accolade paid by the word?) If you like Greatest 18, and have \$20 to spare, why not take a swing at this year's championship courses?

**Paul Statt**  
*inCider* staff

## SHORT TAKES

**The Duel: Test Drive II** (October 1989, p. 42, by Lafe Low), Accolade, 550 South Winchester Boulevard, Suite 200, San Jose, CA 95128, (408) 296-8400; 512K Apple IIGS, joystick recommended

Rating: ♦ ♦ ♦ ♦

This is the long-anticipated sequel to the original *Test Drive*, and it was well worth the wait. The *Dual* takes you on a white-knuckle drive down twisting highways in a Ferrari F-40 or a Porsche 959. Everything's improved over the first version, especially when you add the supplemental disks *The Supercars* and *California Challenge*.

**Bad Dudes** (October 1989, p. 44, by Tim Moore), Data East, 1850 Little Orchard Street, San Jose, CA 95125, (408) 286-7080; 128K Apple IIe, IIc, IIGS; joystick required; \$34.95

Rating: ♦ ♦

*Bad Dudes* is another of the arcade-game conversions that have made a name for Data East. The graphics and animation could be crisper, but it's challenging enough to keep your interest.

**Jack Nicklaus' Greatest 18 Holes of Major Championship Golf** (November 1989, p. 46, by Dan Muse), Accolade, 550 South Winchester Boulevard, Suite 200, San Jose, CA 95128, (408) 296-8400; 512K Apple IIGS; mouse recommended; \$49.95

Rating: ♦ ♦ ♦ ♦

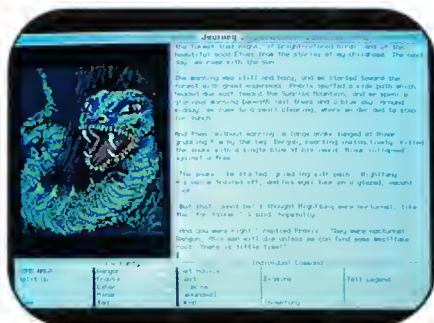
The new standard in computer golf games: Select either of two Nicklaus-designed courses, or choose Jack's 18 favorite holes around the world. It's similar to *Mean 18*, but features a number of additional challenges. You can even play a round with the Golden Bear himself.

**The Hunt for Red October** (November 1989, p. 48, by Joe Abernathy), Software Toolworks, 19809 Nordhoff Place, Chatsworth, CA 91311, (818) 885-

Continued



## JOURNEY



**INFOCOM,**  
3885 Bohannon Drive, Menlo Park, CA 94025,  
(415) 329-0800 (distributed by Mediagenic)

Interactive fantasy adventure;  
128K Apple II, two 5¼-inch disk drives  
(or 3½-inch or hard drive); \$49.95

Rating: ♦ ♦ ♦ ♦

Even though Journey contains some all-too-familiar Tolkienish overtones, you can't help but like Infocom's otherwise ground-breaking adventure game. Journey has all the elements that make you feel like a true participant. The engrossing story line is told masterfully; the role-playing elements let your characters take on individual personalities; and the rapid pace of the game forces you to make constant decisions.

The plot is typical fantasy fare. An unknown evil pervades the land; disease and starvation prevail over the once-prosperous countryside. One party has already failed to find the wizard Astrix, and now a second party must embark on the same mission. That's the group you control.

That somewhat vague background is actually a plus because it lets the details and subplots of the story unfold as you delve further into the game. Another refreshing attribute of Journey is the makeup of the group itself. The characters are more human and less heroic than you might expect and are therefore more believable and sympathetic.

Bergon, the leader, is a strong man and a carpenter by trade. Esher is a physician of some note. Praxix is the local wizard. Tag, a merchant who also acts as a scribe, is the last character. It's through his eyes that the story's told. The characters are well drawn—complete with distinctive personalities and quirks.

The interface is a thing of beauty. The only words you need to type are those that label the game files you save. All other actions—whether selected via mouse, joystick, or key-

board—are activated from five panels that run along the bottom of the screen.

The first panel lists generic commands, such as Game, which activates your Save, Restore, and End Game commands. This panel changes to a directional panel with commands such as Proceed, Back, and Enter once the game begins. The second panel lists the four members of your party and any others you may have met along the way. Interacting with the many people you'll encounter in Journey and deciding whether or not to accept their aid is a major factor in your success.

To the right of each character are three more panels, containing the main actions and all subsequent actions that each character can perform. For example, in the third panel opposite the wizard Praxix, you might find a Cast command, while in the fourth panel you might see Examine. Activating either of those words will call up any additional information needed to complete the action. Regardless of which method you use to select them, commands are easy to access.

A number of actions are available to the various characters with each "turn" (for want of a better word, because the game flows from one scene to the next and actions change on the fly), and each action you choose can change the course of the adventure.

Journey contains multiple endings, and there are various ways to reach each of them. The game boasts more than 100 hi-res graphics scenes, displayed clearly in the upper-left third of the screen above the panel line. The remainder of the screen is used for text.

Journey contains several other helpful options, as well. Infocom fans will be familiar with the Script command, which lets you send the text appearing on screen to a printer.

On-screen hints—another Infocom feature—are handled a little differently here. Should you meet with failure or want to "give up" at some point, select Musings from one of the Command panels. You'll be able to read the narrator's comments on the game you've just played and receive hints and guidelines referring to specific points that occurred during your adventure.

Journey's hallmark as an adventure game is its manner of presentation. With so many fantasy games looking like die-cast versions of each other, it's refreshing to find something that's just a little different. □

**James Trunzo**  
Leechburg, PA

## SHORT TAKES

Continued

9000, distributed by Electronic Arts; 768K Apple IIGs; \$49.95

Rating: ♦ ♦ ♦ ♦

One of the finest simulations on the market. Your control is complete; the tension is real. This game is fascinating to play, but make no mistake—it's animated strategy, not action adventure.

**Gnarly Golf** (November 1989, p. 44, by Lafe Low), Britannica Software, 345 Fourth Street, San Francisco, CA 94107, (800) 572-2272; 512K Apple IIGs; \$29.95

Rating: ♦ ♦ ♦ ♦

This is miniature golf with a gnarly twist. You'll have a blast exploring 18 of the weirdest holes imaginable—a prison cell, a pool table, a dock, a lunch counter, a tavern—just to name a few.

**Crystal Quest** (September 1989, p. 98, by Lafe Low), Casady & Greene, P.O. Box 223779, Carmel, CA 93922, (408) 624-8716; 512K Apple IIGs; \$49.95

Rating: ♦ ♦ ♦ ♦

It's an intensely addicting arcade game—that may be a frequently abused cliché, but it describes Crystal Quest perfectly. Crisp graphics and sounds you won't hear anywhere else keep you coming back. We bet you can't play just one game.

**Deja Vu II: Lost in Las Vegas** (September 1989, p. 98, by Lafe Low), Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (312) 480-7667; 768K Apple IIGs, ROM version 01 or higher, system disk version 3.2 or higher; \$49.95

Rating: ♦ ♦ ♦ ♦

The sequel to *Déjà Vu* starts you off equally clueless, only this time you're in Las Vegas and you owe the mob 100 grand. Good luck finding your way around—you'll need it. At least you'll enjoy the scenery, though, even if you can't get the mob off your back. □



# Now Apple speaks IBM. Three times faster than IBM.

**PC Transporter,<sup>™</sup>  
the Apple II expansion  
board that lets you run  
MS-DOS programs,  
now at a lower price.**

Now your Apple II can run over 10,000 programs you could never use before. Like Lotus 123, dBASE III PLUS, Symphony, Microsoft Works, even Flight Simulator.

With PC Transporter, MS-DOS programs run on your Apple II like they do on IBM PCs or compatibles. With one important difference. PC Transporter runs most of those programs *three times faster* than an IBM PC/XT.

Plus, to speed through number-crunching tasks, you can use our optional 8087-2 math co-processor chip. It plugs into a socket on the PC Transporter.



**Much less expensive than an IBM clone.**

PC Transporter costs less than even a stripped-down IBM clone. And when you add the host of expensive IBM-compatible peripherals you'd need to get the clone up and running, you're left with an expensive, cluttered desktop.

You don't have to buy new hardware to use PC Transporter.

**Works with the hardware you already own.**

With PC Transporter, MS-DOS programs actually see your Apple hardware as IBM hardware, so you can use the same hardware and peripherals you have now.

With IBM software, your Apple hardware works just like IBM hard-

ware. Disk drives, monitors, printers, printer cards, clock cards, serial cards and even hard disks look like IBM type hardware whenever the PC Transporter is activated.

You can use your IIe or IIGs keyboard with IBM software. Or use our optional IBM-style keyboard (required for the II+).

You can use your Apple mouse. Or an IBM compatible serial mouse.

**Plenty of power.**

PC Transporter gives you 640K of user RAM and 128K of system RAM in the IBM mode.

PC Transporter works like an Apple expansion card, adding 752K of extra RAM in the Apple mode. The 752K is useable as a RAMdisk or as memory expansion to any program that follows the Apple Memory Expansion Card protocol (most do). The Apple memory expansion alone is a \$500 value.





PC Transporter taps into the world's largest software library. Now your Apple can run most of the software you use at work. And it opens a new world of communications programs, games and bulletin boards.

### Easy to install.

You can install PC Transporter in about 15 minutes, even if you've never added an expansion board. You don't need special tools. Simply plug it into an Apple expansion slot (1 through 7, except 3), connect a few cables, and go!

### A universal disk drive controller.

PC Transporter will run 3.5" IBM disks from your Apple (or compatible) 3.5" drive. And even if you want to run 5.25" IBM disks you can get our versatile 5.25" drive system and still run Apple 5.25" disks from an Apple 5.25" drive. In other words, when running 3.5" disks, your Apple 3.5" drive will run *both* Apple and IBM disks.

No matter what your drives, you can shift instantly between Apple ProDOS and IBM MS-DOS.

PC Transporter supports up to 5 drives in a number of combinations.

For example, you can connect a 5.25 Applied Engineering 360K dual drive system directly to the card. Then

PC Transporter controls Apple and IBM compatible disk drives. It supports 3.5" and 5.25" MS-DOS and ProDOS formatted diskettes.



plug two daisy-chained Apple 3.5 Drives (not the old Apple UniDisk 3.5) to the dual-drive system. For a fifth drive, you can even use a ProDOS file on a hard disk as an IBM hard disk!

### Versatile data storage.

You can store IBM programs and data on any ProDOS storage device including the Apple 3.5 Drive, Apple UniDisk 3.5, Apple 5.25 drive, SCSI or ProDOS compatible hard drives.

You can even use our 360K PC compatible drive for ProDOS storage and a 143K Apple 5.25 drive for MS-DOS storage.

### Make your Apple speak IBM.

**PC Transporter w/768K \$499**

Note: 768K RAM in Apple mode translates to 640K RAM in the IBM mode because PC Transporter uses 128K for system memory.

**IIgs Installation Kit \$49**

**IIe/II+ Installation Kit \$39**

Optional 5.25 IBM Format  
360K Drive Systems

**Single-Drive System \$259**

**Dual-Drive System \$389**

### What the experts say:

*"Gives Apple II users the best of both worlds ...an impressive engineering feat."*

—A+

*"It's ingenious...a remarkable success!"*

—InCider

*"When you buy a PC Transporter, you're not just giving your Apple the ability to act as a PC clone, you're upgrading your computer in a big way for all your Apple II computing."*

—Nibble

*"An excellent solution for at least half a million people who enjoy Apple II computing at home and endure MS-DOS at work."*

—MicroTimes

*"Extremely versatile...one of the most ingenious and exciting products we've seen."*

—Classroom Computer Learning

*"PC Transporter has created quite a stir. It's accuracy guarantees a whole host of uses...a masterpiece of engineering."*

—Apple Soft

\*When purchased from Applied Engineering or thru a participating dealer.

Prices subject to change without notice. Brands and product names are registered trademarks of their respective holders.

Apple II+ must be FCC certified.



PC Transporter produces better IBM graphics than IBM. Analog is sharper than digital. So with a IIgs analog RGB monitor, PC Transporter's CGA graphics and text are superior to IBM's digital display—even while running your IBM Software!

### Created by Apple's original designers.

The brains behind PC Transporter were also behind your Apple II.

The PC Transporter design team includes the former project managers for the creation of the Apple IIe and IIc. The co-designer of the Apple II disk controller. And the author of the ProDOS operating system.

So you know the PC Transporter and your Apple were made for each other.

### Support and service from the leader in Apple add-ons.

Applied Engineering sells more Apple peripheral boards than anyone else—including Apple Computer. So you know we'll be around after the sale.

PC Transporter comes with a 15-day money back guarantee\*. If you're not fully satisfied after using it, return it for a full refund. PC Transporter also comes with a 1 year warranty.

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
**The Apple enhancement experts.**

P.O. Box 5100, Carrollton, TX 75011  
214-241-6060

A Division of AE Research Corporation.

CompuServe Now Available  
at **Radio Shack®**



## Meet An Apple A Day.

The largest group of Apple® users in the world shares its problems and solutions online every day in CompuServe's Apple Forums. And you can join them.

Find out which Apple software lives up to its claims, how to best use AppleWorks™ and other programs, and access new graphics and sound capabilities on Apple II GS.™ Get support from Apple software authors and hardware vendors.

Want to learn more about educational software? Browse our vast library of programs. Any games fans

in the house? Visit a CompuServe Apple Forum for software and support. There's no better way to get more out of your Apple.

To join CompuServe, see your computer dealer. To order direct or for more information, call 1 800 848-8199. In Ohio and Canada, call 1 614 457-0802. If you're already a member, type GO APPLE at any ! prompt.

**CompuServe®**

An H&R Block Company





# Gadgets and Gizmos For Under \$100

Vacuum your keyboard, trap your mouse, swivel your screen, and stamp out static—we wish you happy holidays, with a long list of computer-related accessories perfect for giving *and* receiving.

By CYNTHIA E. FIELD, Ph.D. CONTRIBUTING EDITOR

**D**ON'T JUST DECK THE HALLS THIS holiday season—deck your Apple II system with accessories that protect your investment, organize your work space, and ensure your personal comfort. From mouse houses to static mats, computer-related gadgets that combine form and function are perfect excuses for buying yourself a present—or better still, hang a copy of this article and its accompanying buyer's guide on your Christmas tree to make Santa's job easier.

Our guide doesn't pretend to be an exhaustive compendium; we couldn't possibly list the estimated thousands of purveyors of computer accessories. Also, we don't include computer-security products here, as *inCider* covered those in July ("Lock It Up!" p. 56).

Apple dealers and department stores probably carry many of these accessories. If you decide to order directly, check out the tips and information in "The Software's in the Mail" (September 1989, p. 66), and join the ranks of smart shoppers who like to save time and money.

#### BASIC HOUSEKEEPING

If your Apple system doesn't exactly pass muster in the white-glove department, add cleaning accessories to your holiday wish list. Assorted fluids, aerosol dusters, and miniature vacuum cleaners help you spruce up your monitor screen and printer platen and tidy up your disk drives and keyboard.

Frequent cleaning is no fun, so cover your system's components between work sessions. Dust covers, available in a variety of materials and colors, help keep out damaging dirt.

If your motto is "a place for everything and everything in its place," this Christmas could be your best yet. You'll relish the variety of disk-storage files available. Try teak or plastic (see-through or color-coded); in sizes to accommodate 5¼-inch floppies or 3½-inch mini-disks; with locks and without; stackable or not.

While "portable" disk holders may accommodate fewer than ten disks, some desktop models can hold more than 100. Still cramped for data-disk storage space?

Disk notchers make your floppies "flippies": You can store data on both sides.

When your mouse oversteps its bounds, corral the critter with a "pocket," "pouch," or "trap." These inexpensive holders attach to the side of your monitor. Some mouse garages provide additional compartments for storing disks or other supplies, too.

When desktop acreage is woefully inadequate, there's nowhere to go but

up! Literally. At least one company makes a monitor tray that turns the space on top of your monitor into a handy "in" box. A variety of manufacturers offer stands that elevate your printer to create space underneath for stacking paper.

#### A MATTER OF ERGONOMICS

Unless your name is S. Claus, each holiday season finds you a year older. Notice an occasional stiff neck or irritated eyes after a long AppleWorks session? As the song says, "Don't worry; be happy." Explore some of the inexpensive accessories designed to relieve eyestrain, sluggish circulation, and muscle fatigue.

Look into (pun intended) an antiglare screen, one of those reflection-reducing filters that fit over your monitor screen and attach with Velcro tape.





If you're habitually craning your neck to see the monitor or the printed document you're typing, it may be time to do more than adjust your computer chair. Invest in a monitor stand and copy holder. Some stands swivel and tilt to afford maximum viewing comfort. Copy holders come in desktop models, but if space conservation is your aim, a "clip," "hinge," or "bar" holder may be your best bet: They attach to your monitor via double-sided adhesive or Velcro tape.

Clicking and dragging got you down? Try using a mouse pad to reduce friction. While you're at it, why not give yourself a lift with an adjustable footrest?

Add a "muffler" to your printer to reduce its clackety-clack assault on your eardrums. Who knows? You may be able to talk comfortably on the phone again—even while printing a Print Shop banner!

No one this comfy wants to fool around with swapping cables, right? If you have two printers, an inexpensive data-switch box lets you select one or the other by turning a single knob. Using both a mouse and a joystick with your IIc? You're a prime candidate for a joystick/mouse interface.

### ENERGY CRISES AND INK SPOTS

They say it can be neither created nor destroyed. But energy in all its forms is a power to be reckoned with—especially when it comes to sensitive electronic equipment. Cooling fans and surge suppressors (some models combine both functions) are *de rigueur* for most Apple II systems, particularly those stuffed with extra circuit boards or located in places prone to lightning strikes and transient power problems.

Worry warts (myself included) will probably want to go all out

and install a Halon fire extinguisher, which can douse a fire without harming electronic gear. And every Apple system is a potential victim of yet another form of energy: static electricity. Antistatic sprays and static-dissipative mats reduce the danger of giving your Apple the computer equivalent of a stroke.

Concerned about the physical effects of computer-generated energy? Investigate Ramstar Group's Body Shield garments, which claim to protect computer users from electromagnetic radiation.



Every elf knows that many Apple II users are gadget fiends. Without risking technical overload, Christmas goodies for the Apple II tinkerer include not only computer toolkits but ribbon re-inkers, as well. With one of these nifty devices, you can tend to a whole batch of ribbons in a single morning. Special adapters let you re-ink ImageWriter II four-color ribbons, too.

For those who eschew this level of "hands-on" experience, at least two companies offer black-ribbon cartridges with re-inking reservoirs built in.

### STUFF THOSE STOCKINGS

With the holiday season upon us, isn't it time to indulge yourself? Often for less than the cost of a pound of gourmet chocolates or a bottle of imported wine you can unwrap no-cal computer accessories to enjoy (without guilt!) the whole year long. Season's Greetings, everybody! □

CYNTHIA FIELD IS THE AUTHOR OF PRESS ROOM, *INCIDER'S* COLUMN ON DESKTOP PUBLISHING. WRITE TO HER AT 60 BORDER DRIVE, WAKE-FIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY. ►

# PRODUCT INFORMATION

## ANTI-GLARE SCREENS

**Anti-Glare CRT Visor**  
Global Computer Supplies  
\$19.70

**Anti-Glare Filter**  
Apple beige or platinum  
Kensington Microware Ltd.  
\$49.95

**Anti-Glare Filter CP-50**  
minimum protection (70%)  
against low-level radiation  
Polaroid Corp.  
\$49.95

**Anti-Static Anti-Glare Filter CP-50SC**  
maximum protection (98%)  
against low-level radiation  
Polaroid Corp.  
\$69.95

**Anti-Glare Glass Filter**  
Curtis Manufacturing Co.  
\$59.95

**Anti-Glare Screen**  
Fellows Manufacturing  
\$24.95 9- to 12-inch &  
12- to 13-inch screens  
\$29.95 14- to 15-inch  
screens

**Antiglare Screen IIGs**  
Data Spec  
\$23.95

**Sunflex SuperScreens**  
Sun-Flex Co.  
\$29.95 monochrome  
\$34.95 color

## CLEANING ACCESSORIES

**Anti-Static Screen Cleaner TX1261**  
pump spray  
Texwipe Co.  
\$5.95

**Computuster TX1212**  
compressed gas cleaner  
with valve  
Texwipe Co.  
\$35.95

**Computuster Refill TX1213**  
Texwipe Co.  
\$6.50

**Dot Matrix Cleaning Kit TX1270**  
Texwipe Co.  
\$29.95

**Kleen and Dry CRT Screen Cleaning Pads TX1205**  
10 twin packs  
Texwipe Co.  
\$5.75

**KeyboardKleen Kit TX1263**  
cleaning solvent, swabs,  
compressed air  
Texwipe Co.  
\$15.95



"Look into  
accessories  
that relieve  
eyestrain."

**Platen Kleen TX1268**  
Texwipe Co.  
\$7.95

**Read/Right CRT Terminal Cleaning Pads TX1308**  
80 pads/box  
Texwipe Co.  
\$19.50

**Read/Right One-Step CRT Terminal Cleaning Pads TX1308**  
8 pieces/box  
Texwipe Co.  
\$19.50

**BP Multipurpose Super Mini Cleaner**  
battery-operated  
vacuum cleaner  
Fordham-Scope Catalog  
\$16.95 direct  
\$24.95 list price

**Cleaning Kit**  
Check-Mate  
Computer Products  
\$19.99 5¼-inch  
\$24.99 3½-inch

**Two-Timer Head Cleaner**  
5¼-inch  
Check-Mate  
Computer Products  
\$4.99

**Cleaning Kits**  
3½- or 5¼-inch  
Fellows Manufacturing Co.  
\$19.95

**Computer Cleaning Kits**  
CK-1 5¼-inch  
CK-2 3½-inch  
Curtis Manufacturing Co.  
\$19.95 each

**Computer Vacuum MV5**  
Data Spec  
\$18.95

**Deluxe Computer Care Kit**  
Immac  
\$48.69

**Mouse Cleaning Kit #7938**  
Immac  
\$19.95

**Disk Drive Head Cleaning Kit**  
National Computer  
Accessories  
\$2.99 5¼-inch  
\$3.99 3½-inch

**Mini-Vacuum**  
National Computer  
Accessories  
\$5.99

**Dust-Off II**  
Falcon Safety Products  
\$31.95 can and nozzle  
\$8.50 can refill

**Falcon Anti-Static Computer Cleaner**  
Falcon Safety Products  
\$2.95 1 oz. spray  
\$4.50 4 oz. spray  
\$5.25 8 oz. refill

**Falcon Print Element Cleaner**  
Falcon Safety Products  
\$10.50

**Falcon Platen Conditioner and Cleaner**  
Falcon Safety Products  
\$7.50 4 oz.  
\$10.50 8 oz.

**FloppiClene**  
Tech-Sa-Port  
\$34.95

**MicroClene**  
antistatic cleaner  
Tech-Sa-Port  
\$24.95

**Head Cleaner**  
5¼- or 3½-inch  
Precision Data Products  
\$2.99

**Head Cleaning Diskette Kit**  
3M  
\$24.99 5¼-inch  
\$19.95 3½-inch

**Platen Cleaner and Restorer Kit**  
3M  
\$6.95

**Screen Cleaner and Restorer Kit**  
3M  
\$9.95



**Head Cleaning Kit**

Verbatim  
\$22.50 5/8-inch  
\$31.50 3/2-inch

**LaserKleen**

cleaning and maintenance  
kit for laser printers  
PerfectData Corp.  
\$39.95

**MacPack**

3/2-inch disk-drive  
maintenance kit  
PerfectData Corp.  
\$34.95

**Personal Computer  
Care Kits**

specify drive size  
PerfectData Corp.  
\$49.95

**Metro Data-Vac**

vacuum cleaner  
CompuAdd Corp.  
\$39

**Mini Vacuum Cleaner**

Price Busters  
\$9.95

**PC/Printer Vacuum**

Lyben Computer Systems  
\$31.95 direct  
\$39.95 list price

**System Sweeper**

hand-held vacuum cleaner  
Corporate Data Products  
\$39.95

**COPY HOLDERS****Copy Hinge**

D.L. West Manufacturing  
\$9.95 letter,  
legal-paper size  
\$12.95 data-processing  
form size

**Curtis Clip**

Curtis Manufacturing Co.  
\$6.95

**Decorator Color  
Copy Holders**

DeVoke Co.  
\$16.95 letter size  
\$29.95 data-processing  
form size

**Desk Clamp Copyholder**

Fellowes Manufacturing Co.  
\$52.95 letter size  
\$95 15 inches wide

**Desktop Copyholders**

Fellowes Manufacturing Co.  
\$16.95 letter size  
\$31.95 data-processing  
form size

**Space Saver**

flat-base copy holder  
Fellowes Manufacturing Co.  
\$44.95

**Weighted Base Copyholder**

Fellowes Manufacturing Co.  
\$46.95

**Desktop Copy Holder**

National Computer  
Accessories  
\$7.99

**Grip Clip Copy Holder**

National Computer  
Accessories  
\$3.99

**Grandstand Copyholders**

Rubbermaid Office  
Products  
\$26.70



Data Spec MV5 Computer Vacuum

**Holdit Copyholder**

RDA Products Ltd.  
\$39.50, letter size,  
9 1/2 by 12 inches  
\$40.50 legal size,  
9 1/2 by 14 inches  
\$44.50 wide size,  
14 by 12 inches

**Tabletop Copyholder**

Wilson Jones  
\$17.95

**Universal Copy Stand**

Kensington Microware Ltd.  
\$29.95

**COVERS AND  
CARRYING CASES****Antistatic Vinyl  
Dust Covers**

Corporate Data Products  
\$11.95-\$19.95

**Apple IIc Carrying Case**

Alltech Electronics Co.  
\$29

**Cloth Dust Covers**

Global Computer Supplies  
\$16.95-\$28

**Computer Dust Covers**

National Computer  
Accessories  
\$2.49 and up

**Dust Covers**

Computer Cover Company  
\$3-\$30

**IIcs Soft Keyboard  
Protector**

Computer Covers Unltd.  
\$29.95

**Two-Ply Nylon  
Dust Covers**

Two Guys F.T.V.  
\$12.95-\$20.95

**Vinyl Dust Covers**

Computer Coverup  
\$6.95-\$16.95

**Water-Resistant  
Packcloth Dust Covers**

ABCDM  
\$6.95-\$24.95

**DATA SWITCHES  
AND ADAPTERS****A-B Switch DS-1**

connects two printers  
with one computer  
Curtis Manufacturing Co.  
\$49.95

**A-B Switch DS-2**

connects two computers  
with one printer  
Curtis Manufacturing Co.  
\$49.95

**Data Switch Boxes**

Price Busters  
\$29-\$39

**Four-Port  
Game-Port Extender**

Price Busters  
\$14.95

**Data Switches**

Data Spec  
\$49.95-\$59.95

**Modunet**

Appletalk Network Adapter  
Data Spec  
\$37.95-\$47.95

**Data Switches**

two-way  
Global Computer Supplies  
\$19.95-\$59.95

**Data Switches**

National Computer  
Accessories  
\$9.99 and up

**Data Switches**

VSI  
\$24.95-\$39.95

**Gameport Adapters**

SCRG  
\$29.95

**Moustik Switch IIc**  
plugs joystick and  
mouse into IIc  
SCRG  
\$29.95

**Mirage**  
joystick/mouse interface  
CH Products  
\$54.95

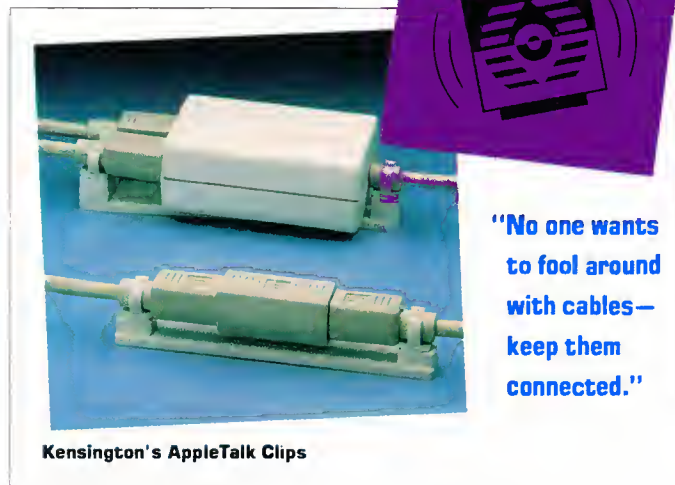
**Switch Boxes**  
TCX Ltd.  
\$30-\$45

## DISK ACCESSORIES

**BP Deluxe Floppy Diskette  
Storage Case**  
holds 85 5¼-inch disks  
with lock  
Fordham-Scope Catalog  
\$24.95

**Color Coder Library Case**  
SRW Computer Components  
\$17.95, holds 50 5¼-inch  
disks in 5 color-coded  
library cases  
\$19.95, holds 50 3½-inch  
disks in 5 color-coded  
library cases

**Library Case**  
holds 10 5¼-inch disks  
SRW Computer Components  
\$3.95



Kensington's AppleTalk Clips

**"No one wants  
to fool around  
with cables—  
keep them  
connected."**

**Micro Disk Cube**  
holds 25 3½-inch disks  
SRW Computer Components  
\$10.95

**SRW Disk Files**  
hold 50 3½-inch  
or 60 5¼-inch disks  
SRW Computer Components  
\$12.95 each

**Curtis 5¼-Inch File**  
holds 50 disks  
Curtis Manufacturing Co.  
\$9.95 without lock  
\$12.95 with lock

**Disk Notcher**  
Educational Resources  
\$3.95

**Disk Notcher**  
Learning Services  
\$4

**Disk Notcher**  
Memory Plus Distributors  
\$4.50

**Disk Notcher**  
Price Busters  
\$4.95

**Disk Storage MM3**  
holds 30 3½-inch disks  
Hunt Data Products  
\$9.95

**Disk Storage MM5**  
holds 50 5¼-inch disks  
Hunt Data Products  
\$10.95

**Disk Valets**  
Ricks Ramstar  
\$5, holds 3 3½-inch disks  
\$8.50, holds 6 3½-inch  
disks  
\$13.50, holds 12 3½-inch  
disks

**Meeting Folder**  
nylon folder holds writing  
pad and four 3½-inch disks  
Ricks Ramstar  
\$17.50

# TEN HEALTH TIPS

No, we're not about to classify using a computer as a strenuous activity. Sure, maybe your eyes tire and itch occasionally, or maybe your neck stiffens, but you don't climb into the whirlpool after making entries in your database or doing calculations in your spreadsheet. Yet complaints of headaches, dizziness, blurred vision, and hand cramps have become more common among even part-time users. The following tips can help make computing less stressful and, consequently, more enjoyable:

**1. Give your hand a break.** Carpal tunnel syndrome, which paralyzes the fingers, occurs when the main nerve running from the arm into the hand is pinched off at the wrist. This condition can result from extended typing, and even

more frequently, from extended use of joysticks. Take a break every 15 or 20 minutes. Flex and stretch your arm and wrist by shaking them and opening and closing your hands slowly. Make sure the keyboard is low enough that your hands don't get tired, and keep your wrists from resting on the sharp edges of your desk.

**2. Keep the screen clean and static-free.** Because a dirty screen is more difficult to read, it increases the chance of eyestrain. In addition, evidence suggests that chronic exposure to dust can cause rashes.

By cleaning the screen with an antistatic wipe, you can reduce static buildup caused by the high-voltage electron beams striking the screen internally. Reduced static buildup will lessen the amount of dust on the screen (static attracts positively charged dust particles) and the amount bouncing off the screen toward you. (Static repels negatively charged dust particles.)

**3. Purchase a glare deflector for your monitor.** While your brain's concentrating on the information on screen, your eyes are filtering out glare. You can reduce the consequent eyestrain with any of a variety of transparent panels you can place over your monitor's screen. The least expensive option is a black nylon mesh, resembling a

silk stocking, stretched over a plastic frame. Using Velcro strips, you can attach it easily to the monitor and remove it for cleaning. Mesh-type deflectors average \$20 to \$40.

Some mesh screens are coated with conductive carbon, which absorbs static. These have a special cable, which, when attached to a valid ground, drains the static away from the screen. If you do use a mesh glare deflector, you'll need a special screen cleaner to remove the dust that'll collect on it. Such cleaners are usually adhesive rollers, priced from \$5 to \$10.

A second option is polarized glass screens, which will usually set you back no more than \$50-\$90. These work something like polarizing filters for cameras or polarized sunglasses—they let light of only a certain frequency pass through the filter to your eyes. These screens don't always fix the problem, however, because the reflections are often transferred to the polarizer's surface.

Finally, check out glass screens with antireflective coatings. These deflectors have multiple coatings: Light bouncing off the uppermost layers interferes with the light bouncing off lower layers, effectively destroying the glare. You'll need special cleaners for this deflector as well. Standard screen cleaners will slowly remove the antireflective coating, rendering the glare screen useless in a short period of time.



**The Diskeeper**  
3-ring binder  
for 3½-inch disks  
Cobar  
\$19.95 binder  
with 5 pages  
\$6.95 3-page refill

**DiskFile 60**  
holds 60 5¼-inch disks  
ALLSOP  
\$14.95  
\$16.95 with lock

**DiskFile 80 Micro**  
holds 80 3½-inch disks  
ALLSOP  
\$19.95  
\$21.95 with lock

**DiskFile 30 Micro**  
holds 30 3½-inch disks  
ALLSOP  
\$13.95, \$15.95 with lock

**Diskette Traveler**  
holds five 5¼-inch  
or 3½-inch disks  
National Computer  
Accessories  
99¢

**Diskette Traveler**  
holds 10 3½-inch disks  
National Computer  
Accessories  
\$1.79



**Fan-File**  
holds 10 3½-inch  
or 25 5¼-inch disks  
Fellowes  
\$6-\$8

**Monitor Tray**  
Ring King  
\$34.95

**Pak Ups**  
cordura disk holders  
Computer Cover Company  
\$3-\$8

**Teak Rolltop  
Diskette Storage Case 454**  
holds 50 5¼-inch disks  
Kalmar Designs  
\$39.50

**Teak Rolltop  
Diskette Storage Case 456**  
holds 120 5¼-inch disks  
Kalmar Designs  
\$66.50

**Teak Rolltop  
Diskette Storage Case 452**  
holds 45 3½-inch disks  
Kalmar Designs  
\$27.95

**Teak Rolltop  
Diskette Storage Case 453**  
holds 90 3½-inch disks  
Kalmar Designs  
\$45.25

**Teak Rolltop Microcase**  
holds 12 3½-inch disks  
Kalmar Designs  
\$22.95

## MONITOR STANDS

**Monitor Arms**  
Curtis Manufacturing Co.  
\$69.95 and up

**Universal Tilt/Swivel  
Monitor Base**  
Curtis Manufacturing Co.  
\$29.95

When playing games, you may want to remove the glare shield on your monitor. In addition to reducing reflections from the screen, the shield also reduces light radiating from it, making it more difficult to follow fast-moving objects.

**4. Position the monitor correctly.** Place your monitor 18-24 inches from your eyes, and make sure neither outside nor indoor light falls directly on your Apple II, to alleviate eyestrain and reduce the amount of glare on the screen. Mounting the monitor on a tilt-and-swivel base will make adjusting it for the best viewing conditions easier.

**5. Blink every three seconds.** If you work at your computer for a significant amount of time, you're probably not blinking often enough to keep your eyes as moist as they should be.

Under normal conditions, we blink about once every five seconds, but in front of the computer, you may go as long as one minute without doing so. As a result, dust particles settle on the eye's cornea, causing discomfort. The problem's even worse for contact-lens wearers.

**6. Make sure you have proper lighting.** Because your monitor produces its own illumination, you need to rely less on room light than if you were, say, reading a book. In addition, read-

ability of the monitor requires contrast, so less light is preferred. Finally, keeping a room less bright reduces the amount of adjustment your eyes have to undergo when you look away from the screen.

Normally, the light from your monitor is equivalent to a dimly lit bulb. When you're looking at your screen, your pupils relax and expand to let in more light. Turn away from the screen, and your pupils must then adjust to the higher level of brightness in the room.

To obtain the happy medium of seeing your work without shining light on your monitor, avoid overhead lighting in favor of a desk lamp. The light may be either incandescent or fluorescent, but should be between 60 and 75 watts.

**7. Check with your ophthalmologist about special glasses and contacts.** If you wear contact lenses, special nondrying types require much less moisture to function properly. There's also good news for bifocal wearers. Standard bifocals are designed to provide correct vision at roughly one foot, the normal distance at which you hold printed material. Also, because the far-sighted corrective lens is placed lower than the rest of the bifocal lens, wearers have to tilt their heads backward to view the computer screen, which often leads to neck cramps and back pain. Now you can get

specially designed bifocals that provide correct vision at computer distances (18-24 inches).

**8. Position your work correctly.** Place your printed material close to the monitor and at the same distance as the screen. Take a look at the variety of copyholders that hang onto your document. Choose one that attaches to your monitor, rests on the table like an easel, or clamps.

**9. Use a proper chair.** While good chairs are expensive, they're worth every penny. Remember, an uncomfortable chair is the biggest cause of computer-related neck and back problems. Pick a chair you can adjust for height. When seated, you should be able to place your feet firmly on the floor. The height of the seat back should correspond to your lower back and adjust to your spinal contours. Arm rests shouldn't interfere with free movement.

**10. Take breaks.** Take a break every hour or two. Get up from your chair, walk around, stretch your arms and legs, shrug your shoulders, shake and nod your head. Your break should last 10-15 minutes. Look away from the screen every 15 or 20 minutes. Look at distant objects, then at close objects, then at distant objects again to exercise your eyes.

—Vincent D. O'Connor

**Monitor Mover**  
National Computer  
Accessories  
\$48.99

**Tilt and Swivel  
Monitor Base**  
National Computer  
Accessories  
\$8.49  
\$9.49

**Teak Monitor Turntable**  
Kalmar Designs  
\$43.95

**Tilt Swivel Base  
Model W30**  
Computer Accessories  
Corp.  
\$24.95

## MOUSE ACCESSORIES

**Mouse House**  
National Computer  
Accessories  
\$3.49

**Mouse Pad**  
National Computer  
Accessories  
\$4.99

**Mouse Pad**  
Curtis Manufacturing Co.  
\$6.95

**Mouse Pads**  
Educational Resources  
\$4.95

**Mouse Pocket**  
Ile/c  
Kensington Microware Ltd.  
\$9.95

**Mouse Pocket ADB**  
GS  
Kensington Microware Ltd.  
\$9.95

**Mouseway Mouse Pad**  
Kensington Microware Ltd.  
\$9.95

**Mousebase Pads**  
Computer Coverup  
\$5.95

**Mousepad**  
Mousetrak  
\$8.95  
\$9.95

**Mousepouch**  
GS mouse holder with  
storage for 8 3½-inch disks  
H&H Enterprises  
\$5.95

**Mousetrap**  
copy stand with mouse  
storage cubicle  
Gered Corp.  
\$39.95

**Mousetrap Jr.**  
Gered Corporation  
\$19.95

**Sharp Tracer**  
tracing unit for mice  
Dynatron  
\$21.95

## PRINTER ACCESSORIES

**Auto-Inker**  
V-Tech Inc.  
\$41  
\$59.95



Fellowes Cleaning Kit for 5¼-inch disks

**Cable Managers**  
Hunt Data Products  
\$9.95 80-column printers  
\$12.95 132-column  
printers

**80-Column Printer Stand**  
Hunt Data Products  
\$19.95

**Printer Stand Plus**  
Hunt Data Products  
\$19.95

**Universal Printer Stand**  
Hunt Data Products  
\$9.95

**Envelope Print Pouch**  
CD Sales  
\$19.95

**Stationery Print Pouch**  
CD Sales  
\$19.95 each

**E-Zee Inker II**  
Borg Industries Ltd.  
\$39.50 and up

**Falcon**  
ribbon cartridge with  
built-in re-inker  
Dynatron  
\$19.95

**MacInker**  
ImageWriter II or Epson  
Computer Friends  
\$42

**Multicolor Adapter**  
re-inks 4-color ribbons  
Computer Friends  
\$40



"Does your  
Apple pass  
muster in the  
white-glove  
department?"

**Universal MacInker**  
Computer Friends  
\$68.50

**Printer Muffler**  
Kensington Microware Ltd.  
\$69.95 80-column printers  
\$89.95 132-column printers

**Printer Stand**  
Kensington Microware Ltd.  
\$29.95

**Printer Stand**  
Fellowes  
\$13.95-\$32.95

**Printer Stands**  
beige or platinum  
Data Spec  
\$13.95

**Refolding Desktop  
Printer Stand**  
Computer Coverup  
\$34 80-column printers  
\$39 132-column printers

**Sta-Bik Ribbon Cartridge**  
ImageWriter I, II  
Chronos Computers  
\$59.95

**Teak Printer Stands**  
Kalmar Designs  
\$43.95 80-column printers  
\$55.95 132-column printers

**Universal Printer Legs**  
Curtis Manufacturing Co.  
\$12.95

**Universal Printer Stand**  
Curtis Manufacturing Co.  
\$24.95

## PROTECTORS

**Anti-Static Mats**  
CompuAdd Corp.  
\$10.95 11½ by 22 inches  
\$19.95 19½ by 23½ inches  
\$24.95 23½ by 25½ inches

**Anti-Static Mats**  
Source System Inc.  
\$16.95-\$38.90

**Lightning Rod Anti-Static  
Printer Pad**  
Source System Inc.  
\$27.95-\$37.95

**Static Dissipator  
with LCD Display**  
Source System Inc.  
\$24.50

**First Touch  
Keyboard Strip**  
3M  
\$19.95

**First Touch Keyboard Pad**  
3M  
\$39.95

**Apple Cooling Fan**  
II, II Plus, Ile  
Jameco Electronics  
\$24.95

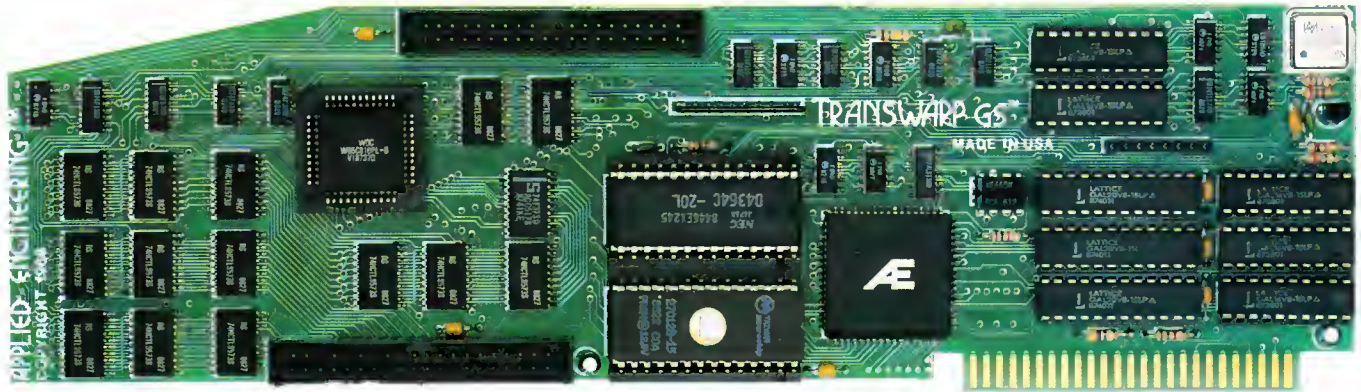
**Body Shield Apron**  
Ricks Ramstar  
\$39.50

**Cool-It**  
GS and Ile Cooling Fan  
Cirtech Limited (U.K.)  
A2-Central (U.S.)  
\$49

**Cooling Fan IIGs**  
Memory Plus Distributors  
\$19.95

**Diamond Chip  
Phone Protector**  
Curtis Manufacturing Co.  
\$19.95





# Fan mail GS

*"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."*

— Owen Linzmayer, Technical Editor, A+

*"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."*

— Joe Kohn, The Source

*"Once I started using the original TransWarp in my old IIe, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."*

— Lafe Low, Review Editor, Incider

*"This is the card you want. Sell whatever secondary peripherals you must in order to get a TransWarp GS plugged in."*

— Joe Abernathy, Houston, TX

*"Together with my RamKeeper, you have given me a color Mac at one-third the price. Thanks."*

— Richard Artz, Ft. Collins, CO

*"I have conducted some recent tests which indicate that the 'little' IIGS (with TransWarp GS) outperforms the MacSE. Your engineering department should take a bow."*

— George Dombrowski, Jr., Chicago, IL

*"TransWarp GS will be the best \$400 you ever spent."*

— Dan Muse, Editor in Chief, Incider

*"WOW WOW WOW! I am completely blown away with how fast it goes. Unbelievable."*

— Dean Esmay, A2-Central

*"TransWarp GS is by far the best money I've spent on my GS since purchasing my DataLink. Hats off to everyone at AE for another great product!"*

— Greg Dacosta, GENie

TransWarp GS is rapidly changing the way people use the Apple IIGS. Join the thousands of TransWarp GS owners who've discovered computing at Warp Speed. For more than nine years, Applied Engineering has led the way with proven, reliable products for the Apple II line. We plan to keep it that way. Thanks for the vote of confidence, folks.

**TransWarp GS Accelerator . . . . . \$399**

## Order today!

To order or for more information on TransWarp GS, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of the respective holders.

**Diamond**  
surge protection  
Curtis Manufacturing Co.  
\$59.95

**Diamond-Plus**  
with phone protection  
Curtis Manufacturing Co.  
\$79.95

**Emerald**  
Curtis Manufacturing Co.  
\$69.95

**Remote Emerald**  
Curtis Manufacturing Co.  
\$89.95

**Sapphire**  
Curtis Manufacturing Co.  
\$89.95

**Ruby**  
Curtis Manufacturing Co.  
\$99.95

**Safe-Bloc**  
6 multipurpose outlets  
Curtis Manufacturing Co.  
\$19.95

**Safe-Strips**  
Curtis Manufacturing Co.  
\$29.95  
\$39.95

**Touch Me First  
Anti-Static Mat**  
Curtis Manufacturing Co.  
\$39.95

**Falcon Halon 1211  
Fire Extinguisher**  
Falcon Safety Products  
\$39.95 small  
\$49.95 1½ pounds  
\$59.95 2½ pounds

**Flameout Halon Fire  
Extinguisher**  
Global Computer Supplies  
\$59.10-\$189.50  
2½-17 pounds

**Modem/Fax Protector 10**  
Kensington Microware Ltd.  
\$24.95

**Modem/Fax Protector 20**  
Kensington Microware Ltd.  
\$39.95

**Power Tree  
10-Outlet Strip**  
Kensington Microware Ltd.  
\$29.95

**Power Tree  
20-Outlet Strip**  
Kensington Microware Ltd.  
\$49.95

**Power Tree  
50-Outlet Strip**  
Kensington Microware Ltd.  
\$99.95

**Powerline Four  
Surge Suppressor**  
Computer Accessories  
Corp.  
\$29.95

**PowerLine Surge  
Suppressor**  
Check-Mate Computer  
Products  
\$14.95 single outlet  
\$49.95 6 outlets

**Quarterback QB-2C**  
backup power supply for IIc  
Powersine Products  
\$97.95

**Stat Mat**  
MISCO  
\$24.95-\$39.95

**Super Cooler GS**  
Price Busters  
\$24

**Super Fan II**  
II Plus, IIc  
Price Busters  
\$27

**Surge Protector MAX2**  
Panamax  
\$79

**MAX6**  
Panamax  
\$99

**TeleMAX1**  
Panamax  
\$89

**CoaxMAX1**  
Panamax  
\$89



Curtis' TK-2 Computer Tool Kit

## MISCELLANEOUS

**Appletalk Clips**  
Kensington Microware Ltd.  
\$13.75-\$25

**Computer Tool Kit TK-1**  
11 tools  
Curtis Manufacturing Co.  
\$29.95

**Computer Tool Kit TK-2**  
52 tools  
Curtis Manufacturing Co.  
\$79.95

**Foot Ease Footrest**  
MISCO  
\$49.95

**MISCO Adjustable  
Footrest**  
MISCO  
\$35.95

**System Saver**  
II Plus, IIc  
Kensington Microware Ltd.  
\$89.95

**System Saver IIcs**  
Kensington Microware Ltd.  
\$99.95

**Slide-On IIcs  
Replacement Battery**  
Nite Owl Productions  
\$9.95  
\$19.95 for 2

**Table Top Anti-Static Pads**  
Ultra Computer Supplies  
\$24.95 26 by 18 inches  
\$29.95 26 by 22 inches

## MANUFACTURERS' ADDRESSES

**A2-Central**  
P.O. Box 11250  
Overland Park, KS 66207  
(913) 469-6502

**ABCOM**  
2333A North Sierra Highway  
Bishop, CA 93514  
(619) 872-1946

**ALLSOP**  
4201 Meridian  
Bellingham, WA 98227  
(800) 426-4303  
(206) 734-9090

**Alltech Electronics Co.**  
1300 East Edinger  
Suite D  
Santa Ana, CA 92705  
(714) 543-5011

**Borg Industries Ltd.**  
525 Main St.  
Janesville, IA 50647  
(800) 553-2404  
(319) 987-2976

**CD Sales**  
P.O. Box 8423  
Waco, TX 76714  
(800) 848-1516  
(817) 776-4242

**Check-Mate  
Computer Products**  
P.O. Box 103  
Randolph, MA 02368  
(800) 366-0511  
(617) 344-9910

**CH Products**  
1225 Stone Drive  
San Marcos, CA 92069  
(619) 744-8546  
(800) 624-5804  
(800) 262-2004 (CA)

**Chronos Computers**  
4186 Sorrento Valley Blvd.  
Suite N  
San Diego, CA 92121  
(619) 455-8200



# SWIFTAX™ ■ ■ ■

**ALL NEW**  
**FOR YOUR**  
**1989 TAX RETURNS!**  
Prints Out IRS-Approved Forms & Schedules

**EVEN IF YOU'VE NEVER PREPARED A TAX RETURN,  
SWIFTAX MAKES IT EASY TO DO YOUR OWN  
—AND KEEP MORE OF WHAT YOU EARN!**

Step-by-step, line-by-line, SWIFTAX guides you through your Federal tax returns, and instructs you on which forms you must complete. This software program contains an abundance of Help Screens (which you'll find right in the program) that make SWIFTAX so easy to use, you may not need the manual!



**SPECIAL OFFER**  
**THE PRICE WATERHOUSE**  
**"PERSONAL TAX ADVISER"**

Tax Information & Planning Guide  
Details inside every package

- Prints out itemized lists of interest, dividends, etc., for submission to the IRS and for personal records.
- Sets up unique Taxpayer Files, enabling you to make changes to your completed tax returns at a later date.

## Features:

- Guides you through every step of the tax preparation process and instructs you on which forms you must complete.
- Quickly performs all calculations, including specially-designed worksheets and entries, with the tax tables stored in the program.
- Automatically checks your tax alternatives, and calculates the lowest amount of income tax you must pay.
- Calculates and completes the most commonly used supporting schedules—1, 2, A, B, C, D, E, F, R, SE, and Forms 2106, 2441, 3903, 4562, 6251, 8615, and 8814—stores the totals, and automatically enters this information onto your forms 1040, 1040A, or 1040EZ.\*
- Prints your tax information directly onto IRS forms 1040 and 1040A. Printouts for all other supporting forms and schedules are IRS-approved.

**A special HELP! Screen summarizes the new 1989 tax law changes, at the press of a key.**

## This Program Also Includes:

- **A Multi-function Calculator**, at your command at the press of a key.
- **Swiftkeys**: Provides instant access to any forms and schedules included in your tax return.
- **Context Sensitive HELP! Screens**: Just press a key and you'll be guided through the program with easy to understand instructions.
- **Timeworks Exchange Policy**: Allows you to purchase the 1990 SWIFTAX at half price.

For

- Apple 11e, 11c, 11c Plus, IIGS . . . . . **\$69.95**
- Commodore 64, 64c, C128 . . . . . **\$49.95**

**TIMEWORKS®**

444 Lake Cook Rd., Deerfield, IL 60015-4919  
708-948-9200

©Copyright 1983 Timeworks, Inc. All rights reserved.

Find SWIFTAX at your local dealer or order direct from Timeworks. Just call:

**708-948-9202**

\*Commodore version does not complete Forms 3903, 4562, 6251, and Schedule E

**With Timeworks You Get  
A MONEY BACK GUARANTEE**  
Circle 140 on Reader Service Card.

# MANUFACTURERS' ADDRESSES

## **Cirtech Ltd.**

Currie Road Industrial Estate  
Galashiels  
Selkirkshire, Scotland TD1 28P

## **Cobar**

801 Highland Road  
Cheltenham, PA 19012  
(215) 379-2440

## **Co-Du-Co**

4802 West Wisconsin Ave.  
Milwaukee, WI 53208  
(414) 476-1584

## **Compuadd Corp.**

12303 Technology Blvd.  
Austin, TX 78727  
(800) 627-1967  
(512) 258-5575

## **Computer Accessories Corp.**

6610 Nancy Ridge Drive  
San Diego, CA 92121  
(619) 457-5500

## **Computer Cover Co.**

P.O. Box 3080  
Laguna Hills, CA 92654  
(714) 380-0085  
(800) 237-5376 (CA)

## **Computer Covers Unltd.**

7969 Engineer Road  
Suite 104  
San Diego, CA 92111  
(619) 277-0622

## **Computer Coverup**

2230 South Calumet  
Chicago, IL 60616  
(312) 326-3000  
(800) 282-2541

## **Computer Friends**

14250 N.W. Science Park Drive  
Portland, OR 97229  
(503) 626-2291

## **Corporate Data Products**

378 Page St.  
Unit 14  
Stoughton, MA 02072  
(800) 366-6283  
(617) 341-3985

## **Curtis Manufacturing Co.**

30 Fitzgerald Drive  
Jaffrey, NH 03452  
(603) 532-4123

## **Data Spec**

9410 Dwensmouth Ave.  
Chatsworth, CA 91311  
(818) 772-9977

## **Devoke Co.**

1500 Martin Ave.  
Box 58051  
Santa Clara, CA 95052-8051

## **Dynatron Co.**

406 Thurber Drive West  
Suite 9  
Columbus, OH 43215  
(800) 451-3589  
(614) 221-0502

## **Educational Resources**

2360 Hassell Road  
Hoffman Estates, IL 60195  
(800) 624-2926  
(312) 884-7040

## **Falcon Safety Products**

25 Chubb Way  
Branchburg, NJ 08876  
(201) 707-1600

## **Fellowes Manufacturing Co.**

1789 Norwood Ave.  
Itasca, IL 60143  
(312) 893-1600

## **Fordham-Scope Catalog**

260 Motor Parkway  
Hauppauge, NY 11788  
(800) 645-9518  
(800) 832-1446 (NY)  
(516) 435-8080

## **Gered Corp.**

2401 N.E. Cornell Road  
Suite 125  
Hillsboro, OR 97124  
(503) 591-8658  
(800) 852-8727

## **Global Computer Supplies**

11 Harbor Park Drive  
Port Washington, NY 11050  
(800) 845-6225

## **H&H Enterprises**

4069 Renate  
Las Vegas, NV 89103  
(702) 876-6292

## **Hunt Data Products**

14935 N.E. 95th St.  
Redmond, WA 98052  
(206) 869-2898  
(800) 446-7823

## **Inmac**

2465 Augustine Drive  
P.O. Box 58031  
Santa Clara, CA 95052-9941  
(800) 547-5444

## **Jameco Electronics**

1355 Shoreway Road  
Belmont, CA 94002  
(415) 592-8121  
(customer service)  
(415) 592-8097 (orders)

## **Kalmar Designs**

485 Smith St.  
Farmingdale, NY 11735  
(516) 756-7200

## **Kensington Microwave Ltd.**

251 Park Ave. South  
New York, NY 10010  
(800) 535-4242  
(212) 475-5200

## **Learning Services**

61 West Eighth  
P.O. Box 10636  
Eugene, OR 97440-2636  
(800) 435-3276  
(503) 683-3827

## **Lyben Computer Systems**

1050 East Maple Road  
Troy, MI 48063  
(313) 589-3440

## **Memory Plus Distributors**

505 South 48th Ave.  
Suite 104  
Tempe, AZ 85281  
(602) 820-8819  
(602) 830-6457

## **Merritt Computer Products**

5565 Red Bird Center Drive  
Suite 150  
Dallas, TX 75237  
(800) 663-1061 (Canada)  
(214) 339-0753

## **MISCO**

1 MISCO Plaza  
Holmdel, NJ 07733  
(800) US-MISCO  
(201) 264-1000

## **Mousetrak**

930 Dowdell Lane  
St. Helena, CA 94574  
(800) 221-6687  
(707) 963-8179

## **National Computer Accessories**

1510 McCormack St.  
Sacramento, CA 95814  
(916) 441-1568

## **Nite Owl Productions**

5734 Lamar  
Mission, KS 66202  
(913) 362-9898

## **Panamax**

150 Mitchell Blvd.  
San Rafael, CA 94903-2057  
(800) 472-5555  
(800) 443-2391 (Canada)

## **Perfectdata Corp.**

1825 Surveyor Ave.  
Simi Valley, CA 93063  
(805) 581-4000

## **Polaroid Corp.**

1 Upland Road  
Norwood, MA 02062  
(800) 225-2270

## **Powersine Products**

P.O. Box 16887  
San Diego, CA 92116  
(619) 280-1646

## **Precision Data Products**

P.D. Box 8367  
Grand Rapids, MI 49518  
(616) 452-3457  
(313) 645-4980 (Detroit)  
(800) 258-0028  
(800) 632-2468 (MI)

## **Price Busters**

4233 Spring St.  
Suite 402  
La Mesa, CA 92041  
(619) 589-0081

## **Ricks RamStar**

P.D. Box 759  
Sardis, GA 30456  
(912) 569-9000  
(800) 327-2303

## **RDA Products Ltd.**

20 Rock Lane  
Yonkers, NY 10701  
(800) 252-0027  
(914) 476-8067

## **Ring Kings Visible**

2210 Second Ave.  
P.D. Box 599  
Muscatine, IA 52761  
(319) 263-8144

## **Rubbermaid Office Products**

3124 Valley Ave.  
Winchester, VA 22601  
(800) 347-9820

## **SCRG (Southern California Research Group)**

P.O. Box 593-R  
Moorpark, CA 93020  
(800) 736-1484  
(805) 529-2082

## **Source System Inc.**

740 Annoreno Drive  
Addison, IL 60101  
(800) 323-9622  
(312) 628-1055

## **SRW Computer Components**

18385 Bandilier Circle  
Fountain Valley, CA 92708  
(800) 331-7248

## **Sun-Flex Co.**

73 Digital Drive  
Novato, CA 94949  
(415) 883-1221

## **TCX Ltd.**

41 North Mall  
Plainview, NY 11803  
(516) 249-1200

## **Tech-Sa-Port**

P.O. Box 5295  
Pittsburgh, PA 15206-5295  
(412) 661-2629

## **Texwipe Co.**

P.O. Box 575  
Upper Saddle River, NJ 07458  
(201) 327-9100

## **3M**

3M Center  
St. Paul, MN 55144  
(612) 733-1110

## **Two Guys F.T.V.**

3160 Zion Lane  
San Jose, CA 95132  
(800) 848-4418  
(408) 259-6800

## **Ultra Computer Supplies**

P.D. Box 616  
Howell, NJ 07731-0616  
(800) 423-1239

## **Verbatim**

1200 W. T. Harris Blvd.  
Charlotte, NC 28213  
(800) 722-0048  
(800) 538-8589

## **VSI**

3641 S.W. Evelyn  
Prntland, OR 97219  
(600) 544-7638  
(503) 246-0924

## **V-Tech Inc.**

2223 Rebecca  
Hatfield, PA 19440  
(215) 822-2989

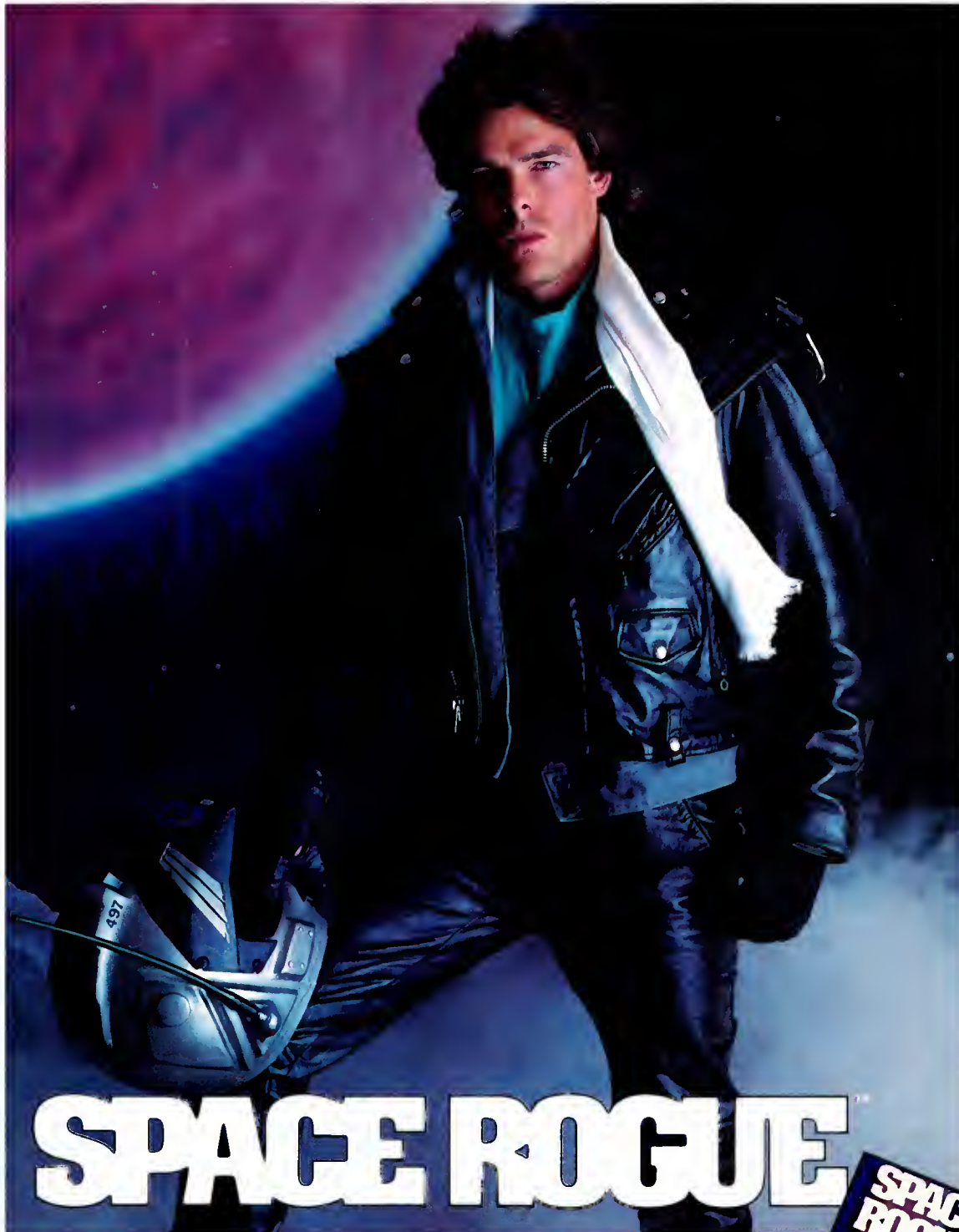
## **D.L. West Manufacturing**

Wesystem Display Products  
1684 S. Research Loop Road  
Suite 510  
Tucson, AZ 85710  
(800) 888-0350  
(602) 290-8330

## **Wilson Jones Co.**

6150 Touhy Ave.  
Chicago, IL 60648  
(800) 952-4637  
(312) 774-7700





Rocket into the striking realism and spectacular visuals of **SPACE ROGUE**, the phenomenal 3D space flight simulation. You'll discover authentic flight dynamics, precision navigational aids and sophisticated weapons technology as you maneuver through turbulent ion storms and confront alien foes. You'll visit space stations and mining outposts — swapping tales with pirates, drinks with friends and goods with merchants. It's the seamless integration of space flight and role playing that makes **SPACE ROGUE** the first ORIGIN Cinematic Experience™.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

**ORIGIN™**  
We create worlds.™

Available for: IBM/Tandy/compatibles, C-64/128, Apple II series, *coming soon for*, Amiga and Macintosh; actual screens may vary.

Can't find **SPACE ROGUE** at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders; or mail check or money order (U.S.\$) to ORIGIN. All versions \$49.95; shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.



# Preferred Computing

## Memory Boards

### Applied Engineering

#### GS-Ram, GS-Ram +, GS-Ram Ultra

Best memory expansion cards for the IIGS.

GS-Ram 256K	\$124
GS-Ram 512K	\$160
GS-Ram 1 MEG	\$233
GS-Ram Plus 1 MEG	\$277
GS-Ram Plus 2-6 MEG	\$CALL
GS-Ram Ultra 256k	\$167
GS-Ram Ultra 512k	\$204
GS-Ram Ultra 1 MEG	\$277
GS-Ram Ultra 2-4 MEG	\$CALL
<b>RamKeeper</b> (GS battery backup)	\$149

### RamWorks III Memory Expansion for the Apple IIe Computer.

RamWorks III 256K	\$145
RamWorks III 512K	\$182
RamWorks III 1 MEG	\$255
RamWorks III 1.5 MEG	\$357
RamWorks III 3 MEG	\$576
512k Expander w/512K	\$146
2 MEG Expander w/1 MEG	\$219
2 MEG Expander w/2 MEG	\$365
ColorLink RGB option	\$109
Digital Prism RGB option	\$109
⚡ AE Ext. 80 Col. card with 64K. (IIe)	\$49

### RamFactor - RamDisk (II + IIe, IIGS)

RamFactor 256K	\$182
RamFactor 512K	\$218
RamFactor 1 MEG	\$291
RamFactor Expander 1 MEG	\$291
RamFactor Expander 2 MEG	\$437
RamFactor Expander 3 MEG	\$583
RamFactor Expander 4 MEG	\$729
<b>RamCharger</b> (RF battery backup)	\$139

### RamExpress (IIc Plus)

RamExpress 256k	\$182
RamExpress 512k	\$233
RamExpress 1 MEG	\$306
<b>DClock</b> (Clock for RamExpress)	\$43

### Z-Ram Ultra (for original IIc)

Z-Ram Ultra 1 (Memory Only)	
256k	\$145
512k	\$182

### Z-Ram Ultra 2 (Memory, Clock)

256k	\$196
512k	\$233
1 MEG	\$306

### Z-Ram Ultra 3 (Memory, Clock, Z-80)

256k	\$255
512k	\$291
1 MEG	\$364

### 256K DRAMs (set of 8 150ms)

\$40

### 256K DRAMs (set of 8 120ms)

\$44

### 256K x 4 DRAMs (for GS-Ram Ultra)

\$66

### 1 MEG DRAMs (set of 8)

\$161

### MacRAMs (SIMMs for OctoRAM or Mac)

\$131

### 256k (low profile)

\$218

### 1 MEG (low profile)

\$218

### 2 MEG kit (contains 2 1 MEG SIMMs)

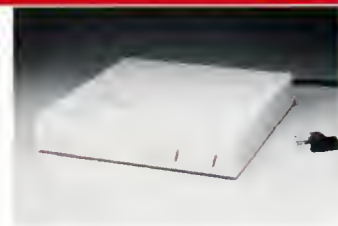
\$437

## Preferred's Best Buys



ComputerEyes offers a low cost way to capture real world images with your Apple II computer. Hook up your VCR, Camera or Videodisk to ComputerEyes & in just seconds, have an image ready to use in your favorite Graphics or DTP program.

Computer Eyes GS (color)	\$199
Computer Eyes (B/W)	\$108



Kensington System Saver GS. The first Fan for the IIGS. The System Saver comes with four switched outlets to let you turn your external devices off or on (such as a printer or modem). High powered fan keeps your computer running cool. The System Saver fits right on top of your IIGS.

Kensington System Saver GS	\$65
----------------------------	------

To Order, Call Toll-Free

1-800-327-7234

Questions & Customer Service Call 214/484-5464

## PC Transporter

### PC Transporter

Run IBM software on your 64k Apple II computer. Installation kit includes VHS installation video. Card functions as a Ramdisk under ProDOS.

PC Transporter 768k (640K IBM)	\$364
MS-DOS (v4.01)	\$85
IIGS Installation kit	\$36
IIe/II+ Installation kit	\$29

Single 3.5" (720k) TransDrive	\$189
Dual 3.5" (720k) TransDrive	\$284
Single 5.25" (360k) TransDrive	\$189
Dual 5.25" (360k) TransDrive	\$284

A Preferred Computing Exclusive! Run both 3.5" and 5.25" MS-DOS disks! Buy a Combo TransDrive with one 5.25" (360k) and one 3.5" (720k) TransDrive. \$284

### PC Transporter Accessories

"Mastering MS-DOS" (book)	\$15
128k "ZIP" Ram Chips	\$58
720k 3.5" Add-on drive	\$95
360k 5.25" Add-on drive	\$99
8087-2 Math Co-Processor chip	\$189
IBM Keyboard w/cable	\$101
IBM Keyboard cable	\$25
Digital RGB cable	\$18
ColorSwitch Analog RGB adaptor	\$32

## Printer Cards/Clocks/IO Boards

### Applied Engineering

DClock (for RamExpress & Apple card)	\$43
Parallel Pro (incl. parallel cable)	\$72
Buffer Pro Buffer option for AE Parallel Pro.	
Buffer Pro (32k)	\$80
Buffer Pro (128k)	\$116
Buffer Pro (256k)	\$160
Serial Pro (serial card & ProDOS clock)	\$101

Let your Apple II computer control your home with the TimeMaster & BSR options!

TimeMaster H.O. (II + IIe, IIGS)	\$72
BSR Option (for TimeMaster HO)	\$21
BSR Command Console	\$29

### Practical Peripherals

Seri-All (emulates Apple SSC)	\$95
GraphiCard (incl. parallel cable)	\$65

### Data Acquisition

#### Applied Engineering

Use an A/D board to read measure devices such as temperature probes, wind speed etc.	
8 bit A/D & D/A (II + IIe, IIGS)	\$145
12 bit, 16 channel A/D (II + IIe, IIGS)	\$204
Signal Conditioner (I/O 32 & A/D)	\$58

Use the I/O 32 in your Apple II as a burglar alarm, light control, turn motors off/on etc.

I/O 32 (II + IIe, IIGS)	\$65
-------------------------	------

## Hard Drives & Floppy Drives

### AMR (Micro-Sci)

AMR Hard Drives for Apple II computers come complete with SCSI controller card.

⚡ D20/APS 20 Meg	\$629
⚡ D60/APS 60 Meg	\$899
⚡ D45SY/APS 45 Meg Removeable	\$1370
⚡ AS800 3.5" 800k drive	
(IIgs, Mac, or IIe w/UDC)	\$195
⚡ A.5 5.25" drive	
(20 pin connector for II, IIe)	\$135
⚡ A.5c 5.25" drive	
(DB19 connector for IIe, IIc, IIc+, IIGS)	\$135
⚡ A.5d 5.25" drive	
(daisy-chainable for IIe, IIc, IIGS)	\$159

### Apple

⚡ SCSI Controller Card	\$109
------------------------	-------

### Applied Engineering

Vulcan internal Hard Drives come complete with controller card. GS model comes with GS/OS v3.0. (specify machine).

Vulcan 20 Meg HD	\$519
Vulcan 40 Meg HD	\$679
Vulcan 100 Meg HD	\$1310
5.25" Disk Drive	\$119
Drive Controller card	\$50
DB19 Drive cable (convert Disk II type cable to IIc type cable)	\$15
20 Pin-Adaptor Cable (connects to Disk II controller card & gives DB19 connector)	\$15

### Chinook (requires a SCSI card)

⚡ CT-20 SCSI HD	\$525
⚡ CT-40+ SCSI HD	\$719
⚡ CT-80 SCSI HD	\$1200
⚡ CT-20c HD The only hard disk available for IIc & IIc+ (no SCSI card needed)	\$625

### Laser Computer

⚡ Universal Drive Controller (for use with AMR 3.5" drive on Apple IIe)	\$59
---	------

### Blank Disks

5.25" DS/DD (pkg. of 10 w/sleeve)	\$8
3.5" DS/DD (pkg. of 10)	\$15

## Accelerators & Co-Processors

**TransWarp GS** Makes your Apple IIGS run more than twice as fast. Works with the NEW Apple IIGS computer! \$291

**TransWarp** Speeds up your IIe, II+ or compatible 3.5 disks. Functions as 16k card in II+. (IIe, II+, compatibles) \$123

**FastMath** Co-processor speeds up math functions 3-12x. Combine with TransWarp for greater speed. (II + IIe, IIGS) \$131

**Z-80 Plus** CP/M for the Apple II. Comes with Applied Engineering's CP/AM 5.1 (II+, IIe, IIGS) \$109

**Z-80c** CP/M for the Apple IIc! Comes with Applied Engineering's CP/AM 5.1. Includes support for 3.5" disks. \$116

If you don't see it here - Call us.

To place an order by Mail: Please list item(s) you wish to purchase along with your complete shipping address and daytime phone number. Send Check, Money Order, or Credit Card number & expiration date. We accept MasterCard, Visa and C.O.D. orders.

To place an Order by Phone: Call 1-800-327-7234 (Orders only). Ak, Hi, Tx, & Outside US call: 1-214-484-5464. TX residents add 7% Tax.

School & Government P.O.'s accepted.

⚡ = New Products

⚡ = Monthly Specials

Prices are subject to change without notice.



# Season's Greetings

From Preferred Computing - Your Holiday Headquarters

## Music / Speech / Video

### Applied Engineering

Sonic Blaster (IIGs)	\$94
Audio Animator (IIGs)	\$174
Phasor (II+, IIGs)	\$123
ViewMaster 80 (II+)	\$116

### Digital Vision

Computer Eyes GS (color)	\$199
Computer Eyes (B&W for IIGs)	\$108

### Mediagenic (Activision)

Music Studio GS v2.0	\$79
----------------------	------

### Passport Designs

Home Studio GS (incl MIDI interface)	\$209
Master Tracks Jr. (1.25m IIGs)	\$119
Music Tutor (128k Apple II)	\$119
Other Passport Products	\$CALL

### Roger Wagner Publishing

HyperStudio HyperCard for the IIGS	\$89
------------------------------------	------

### Sony

KV1311CR - 13" High Resolution RGB TV/Monitor. Perfect for the IIGS.	\$569
KV1311CR cable (\$22 w/monitor purchase)	
Specify Analog or Digital	\$29

### Street Electronics

Echo Speech products come with external speaker w/volume control & software.	
Echo IIB (speech for IIGs)	\$99
Echo IIC (speech for IIG & IIG+)	\$119

### ThunderWare

ThunderScan No camera needed! Plug into your ImageWriter II & go.	\$175
---	-------

## Accessories

### Applied Engineering

Conservor (IIGs)	\$89
Heavy Duty Power Supply (II+, IIGs)	\$69
Lowercase ROM (II+)	\$18
Pocket Rocket (16k RAM card for II+)	\$72

### CH Products

Flightstick (IIG, IIGs)	\$42
MACH IV Plus (IIG, IIGs)	\$69
MACH III Joystick (IIG, IIGs)	\$39

### Kensington

System Saver (II+, IIGs)	\$69
System Saver GS	\$65
Turbo Mouse ADB (IIGs, Mac)	\$124

## Modems

### Applied Engineering

DataLink 1200 bps (II+ IIGs)	\$131
DataLink 2400 bps (II+ IIGs)	\$174

### Practical Peripherals

PM2400Sa 2400 bps (external)	\$199
PM2400Sa w/MNP5 (external)	\$239

### U.S. Robotics

Courier 2400 (external)	\$349
Courier HST 9600 (external)	\$765

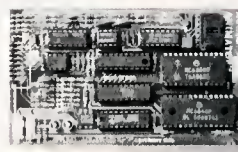
## Preferred's Best Buys



**HyperStudio** HyperCard for the Apple IIGS. Full-color Super Hi-Res graphics. High quality sound: voice, music & sound effects. Animation. Includes clip-art & sample sounds. Built in paint program, text editor & sound recorder. Includes sound digitizer, speaker & microphone.

HyperStudio

\$89



**Audio Animator** - Stereo Digitizer & MIDI card all in one for the Apple IIGs. Comes with MIDI software & external mixer. Record & playback in stereo. Has MIDI in, MIDI out & MIDI thru connectors. Headphone & microphone jack. Software. Create sounds for HyperStudio.

Audio Animator

\$175

## To Order, Call Toll-Free 1-800-327-7234

Questions & Customer Service Call 214/484-5464

## Communications Software

### Applied Engineering

ReadyLink Pull down menus, mouse support, 132 col. VT100 terminal emulation, more. Requires 128k Enhanced IIG, IIG, IIG+ or IIGs.	\$72
---	------

### Beagle Bros

Point-to-Point Rated #1 Communications program by A+. Now has VT100 terminal emulation. (128k IIG, IIGs)	\$79
--	------

TO. TeleComm Lets you transfers files from within AppleWorks! Requires AppleWorks 2.0 or later. (supports AppleWorks 3.0)	\$49
---	------

### Morgan Davis Group

ModemWorks BBS Construction set. Write your own BBS in BASIC with powerful new commands. Includes AmperWorks. ProDOS based. (all 64k Apple II's)	\$49
--	------

ProLine Message System. Best Apple BBS! Features networked E-Mail, up & downloads, conferences, & more! Written with ModemWorks. Easily modified.	\$175
---	-------

### Soft Tools

Magic City Micro BBS Great low cost BBS. Features E-mail, conferences, up & downloading, more! Easily modified.	\$49
---	------

## Software

### AppleWorks & Enhancements

### Beagle Bros

Super MacroWorks (AW 2.0-2.1)	\$20
TimeOut Series. AppleWorks 3.0 compatible!	\$59
ReportWriter	\$59
TeleComm	\$49
UltraMacros or SpreadTools	\$40
MacroTools I or II	\$19
DeskTools I or II	\$35
PowerPack, SideSpread or Thesaurus	\$35
QuickSpell or SuperFonts	\$49
Graph	\$69
FileMaster	\$39

### Clariss

AppleWorks GS	\$229
AppleWorks v3.0 (128k Apple II)	\$199

### Entertainment Software

### Broderbund

Where in the World is Carmen San Diego? (64k Apple II or IIGs)	\$29
--	------

### Electronic Arts

Zany Golf (IIGs)	\$29
------------------	------

### Financial Planning / Business

### Howard Software

Tax Preparer (128k Apple II)	\$179
------------------------------	-------

### Intuit

Quicken (128k Apple II)	\$36
-------------------------	------

## More Software

### Manzanita

BusinessWorks Bundle Includes A/R, A/P, I/C, G/L, Sys. Master (128k Apple II)	\$289
---	-------

### MECA

Managing Your Money (128k Apple II)	\$98
-------------------------------------	------

### Monogram

Dollars & Sense (128k Apple II)	\$89
---------------------------------	------

### Stone Edge

DB Master Pro (128k Apple II)	\$192
-------------------------------	-------

### VIP Technologies

VIP Professional (256k Apple IIGs)	\$69
VIP Professional GS (512k)	\$69

### Word Processing / DTP/Graphics

### Beagle Bros

Beagle Draw (was TopDraw)	\$69
BeagleWrite GS (was MultiScribe GS)	\$79
BeagleWrite (was MultiScribe)	\$59

### Broderbund

Bank Street Writer (64k Apple II)	\$49
Bank Street Writer Plus (128k Apple II)	\$59
Dazzle Draw (128k Apple II)	\$45
Print Shop (64k Apple II)	\$35
Print Shop GS (768k)	\$45

### TimeWorks

Graph It!	\$53
Publish It! 2	\$89

### Word Perfect Corp.

Word Perfect GS (512k)	\$104
Word Perfect IIG, IIG (128k Apple II)	\$104

### Utilities

### Beagle Bros

Program Writer (64k Apple II)	\$35
GS Font Editor (128k Apple II)	\$35

### Central Point Software

Copy II Plus (64k Apple II)	\$29
-----------------------------	------

## Why Buy From Us?

- Toll free 800 number for orders.
- We almost always ship from OUR stock. Call us before 3:00 pm (CST) and it ships today.
- Memory cards have all factory installed and tested RAM chips.
- We're nice guys that want to help. We want our business to grow because of repeat customers and word of mouth.
- We handle only the industry's best. We've tested and used all of the products we sell.
- 15 day money back satisfaction guarantee on all hardware. If the hardware doesn't meet your needs, we'll refund the purchase price. No hassles.
- We offer technical support on everything we sell.
- No surcharge for charge cards and we won't charge your card until we ship.
- No sales tax is collected on orders shipped outside Texas.

If you don't see it here - Call us.

Confused about what to buy? Don't call some shoe salesman turned computer salesman, instead call our friendly Apple II Support people for answers. We have been using Apple II's for years and can recommend the best hardware & software for your application. Call our Customer Service department at 1-214-484-5464 for the right answer to your questions.

P.O. Box 815828  
Dallas, Texas 75381



# *The* Good,

Dozens of new products and technological developments in 1989 mark the preeminence of the Apple II in education and its increasing contribution to home, school, and small-business applications.

By **DAN MUSE** \* EDITOR IN CHIEF

PESSIMISTS WOULD SAY THAT THE APPLE II MARKET TOOK A TURN FOR THE worse in 1989—that Apple itself continues to abandon the II in favor of the Macintosh, and that software publishers are turning their attention and resources toward developing products for MS-DOS machines as well as the Mac.

Optimists would disagree completely, however, and argue that the II line remains the dominant computer in the nation's classrooms, and that the GS is also gaining strength as a machine for both home and small business.

Whether you're an optimist or a pessimist, though, there's no arguing that Apple IIcs owners had more to get excited about in 1989 than did IIe or IIc owners. GS enthusiasts were encouraged by the introduction of four major products: System Disk 5.0, TransWarp GS, AppleWorks GS, and HyperStudio; IIe and IIc owners had only one cause for celebration, but it was a big one: AppleWorks 3.0.

And despite attacks from IBM, Apple still owns the education market in 1989. According to LINK Resources, a New York-based market-research firm, Apple controls more than 60

percent of the K-12 segment. And of that, the Apple II makes up 93 percent. While the GS is gaining rapidly, the IIe and IIc add up to 71 percent of those Apple computers in schools. Teachers refuse to give up their IIes and IIcs, so it's not surprising that developers continue to release new 8-bit products and upgrades to older programs—even that venerable workhorse, AppleWorks.

How can you improve on the most popular Apple II program ever? Claris, in conjunction with Beagle Bros, found dozens of ways. AppleWorks has been a fixture in classrooms across the country for years—but teachers have wanted more: a spelling checker; more math and trigonometric functions; better integration among the word processor, spreadsheet, and database manager. **AppleWorks 3.0** delivers in all those areas and dozens more. (See "A New Classic," August 1989, p. 44, and "Life with AppleWorks," this issue, p. 90.)

And although AppleWorks 3.0 is by far the most exciting news of the year for educators and other IIe/IIc owners, **Publish It! 2** and the latest version of The Print Shop are also major upgrades. **The New Print Shop** was announced last summer and as of this writing wasn't shipping yet. (It's expected in December.) Timeworks' upgrade of its popular desktop-publishing program has been available since early in the year, however. It offers several important features the original version lacks, such as recognition of extended memory and compatibility with Print Shop graphics. (See "Publish It! in Business," February 1989, p. 36,

**O**ptimists saw 1989 as a good year, thanks to a new operating system, innovative programs, and the evolution of a package they thought already perfect.



# the Bad

## and the Bow-Wows

and "The Best Gets Better," What's New, August 1989, p. 17.)

Apple itself made a token effort to show support for the older II line at the end of last year with the introduction of the **IIc Plus**—definitely a case of too little too late. (See "A Little More for a Little Less," November 1988, p. 50.) In 1989, software companies that promoted products for the IIc Plus learned an expensive lesson about listening too closely to Apple's overly optimistic marketing rhetoric.

The company also announced the **Apple II Video Overlay Card**, an impressive genlock board that lets you superimpose graphics on a video image. (See "Roll Video," May 1989, p. 42, and "Reel-World Images," July 1989, p. 40.) The Overlay Card appeals mostly to educators, however, and has only a narrow range of potential uses even in the classroom.

What about the company's 16-bit machine? Given that Apple itself did little to promote the II line—no pricing incentives, no promotions, no advertising—the GS continues to sell well, a popular choice for home education and home-office applications.

Apple seems to finally recognize that the GS can co-exist with the Mac and that in some cases the GS may actually be a better solution. While it's clear to us that the GS is more than a teacher's aid, however, don't expect to hear or read much from Apple touting the GS as anything but an education computer. In lieu of a low-priced color Mac, the GS fits into the company's plan to introduce young people to the Apple "look and feel" at an affordable price (relatively speaking, of course).

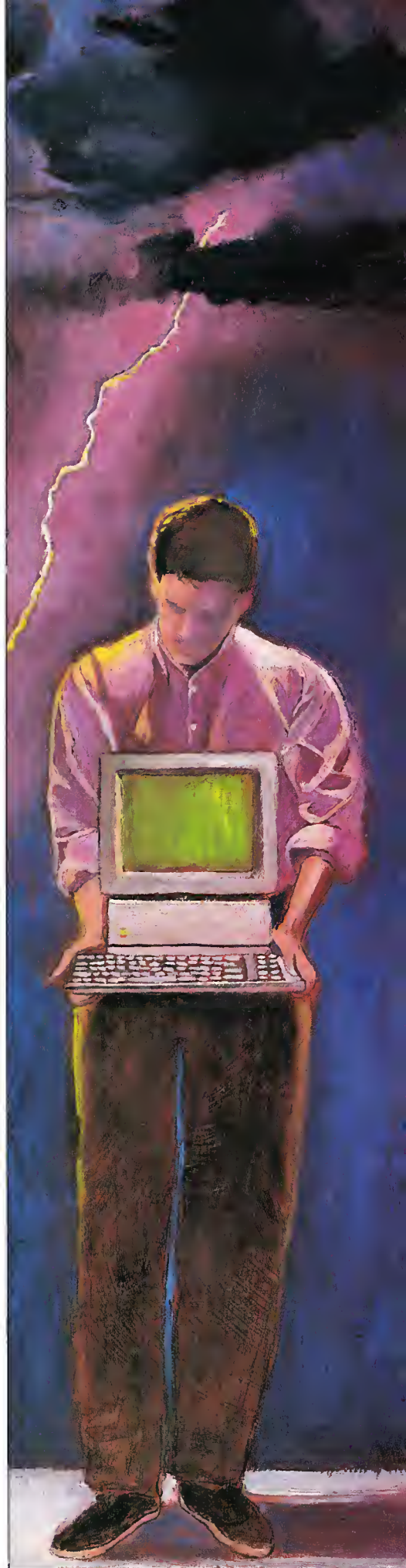
The GS is finally shaping up as a "serious" computer after three years. System Disk 5.0, TransWarp GS, AppleWorks GS, and HyperStudio make it a worthy competitor to MS-DOS systems and the Macintosh in the classroom, the home, and even the office. But, more importantly, each of the four products in its own way makes the GS a more productive worker.

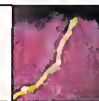
### SMOOTH OPERATOR

If you own a GS and use AppleWorks 3.0, Publish It! 2, and other 8-bit products, you probably don't need to worry about accelerating the rate of that production. But if you crave true GS software, there's no getting around the GS' speed problem: It doesn't have any. In 1989 two remedies for this GS affliction emerged—one's a software cure, and the other's a hardware supplement.

On the operating-system end, **System Disk 5.0** adds speed as well as better network compatibility, plus consistency with Apple Human Interface Guidelines (that is, the Macintosh ►

**P**essimists felt frustrated in 1989. They saw an obvious lack of Apple II development from software publishers, and even less enthusiasm from Apple.





look), for little or no investment. (The disk with manual costs \$49, but you can get 5.0 free from authorized user groups and dealers.) It's a shame GS owners had to wait so long for System Disk 5.0—but the waiting's over in more ways than one. The screen redraws more quickly, programs load faster, and the GS works on the AppleTalk network as it should. (See "From a Trot to a Gallop," November 1989, p. 64, for details.)

The new operating system's no panacea, though—while System 5.0 goes a long way toward making the GS a better performer, some tasks simply require a faster CPU. If you work with large databases, for example, you need more processing speed than the GS' 2.6 megahertz. It's obvious by now that Apple has no plans to produce a GS with a more powerful microprocessor; Applied Engineering's **TransWarp GS**, however, gives GS owners a much-needed speed option. (See "Breaking the Speed Limit," August 1989, p. 50, for more information.)

To most people, Apple's lack of insight and investment in the Apple II is frustrating; to Applied Engineering it's a business opportunity. The dominant Apple II peripheral maker has made a profitable habit of scoring touchdowns after Apple has dropped the ball. Applied

Engineering literally couldn't make TransWarp GSeS fast enough in 1989.

Looking at a steep \$399, you might think GS owners wouldn't rush out for a product that merely adds speed. But users' response proves that you can't put a price tag on the frustration of waiting for a display to redraw or a spreadsheet to calculate. System Disk 5.0 makes TransWarp GS less necessary than it seemed last spring, but combined, this software/hardware duo turn the GS from a jogger into a sprinter.

## APPLEWORKS FOREVER

Ironically, another of the year's five most significant products, **AppleWorks GS**, made the need for System Disk 5.0 and TransWarp GS so obvious. While AppleWorks GS is an impressive integrated package featuring a word processor, a spreadsheet, a database manager, a page-layout program, painting/drawing software, and a telecommunications module, its bulk and sophistication also magnify some of the inherent shortcomings of the IIGs. (See "AppleWorks GS: Worth the Wait?" March 1989, p. 34, and "Ten Tips and Hints," June 1989, p. 52.)

The machine's limitations as well as some flaws in the original version of the six-part package produced an angry mob of users ready to attack ►

## inCider's Doghouse

### CLARIS CORPORATION

Missing one AppleFest (May in Boston) was bad, but missing two (September in San Francisco) is inexcusable. Claris: You've done a great job with AppleWorks 3.0, and AppleWorks GS has potential. Why hide?

### APPLE COMPUTER INC.

Did you know that if your son or daughter wins a contest through Computer Learning Month or the Apple Computer Clubs, he or she can't win a GS? It's a Macintosh or nothing. We know the Macintosh is the system Apple recommends for business, but *education-oriented* contests that don't even give students a choice between the Mac and the GS?

### LASER

We were excited when we previewed the Laser 128EX/2 along with the IIc Plus in our November 1988 issue. But it's September 1989 as we write this, and we still haven't seen a production model of the EX/2.

### MEDIAGENIC

Paintworks Gold is one of the best GS programs around, as is Music Studio. But it was annoying that they didn't work with GS/OS on System Disk 4.0, and there's no indication they'll work with GS/OS on System Disk 5.0. Mediagenic: If you're not going to update your software to take advantage of System 5.0, at least have the good sense to not have your executives make statements like this in Apple press releases: "We're very happy that Apple continues to invest in software that improves the capabilities of the Apple IIGs and makes the IIGs an even more attractive choice for home and education users" (July 1989).

### JOHN SCULLEY

John Sculley deserves a spot in our Doghouse for several reasons, but we settled on this inane comment published in *Apple INK*, a magazine for Apple employees: "Essentially, what we want to do for computers is what McDonald's did for hamburgers. . . . When you go into McDonald's you know what the experience is going to be." We have nothing against McDonald's, John, but the McDonald's experience is mediocre food, fast, at low prices. How about great computers at reasonable prices? And don't forget to keep the Apple II on the menu. Of course, if you did it your way, you could call Apple dealers McDonalds.

## PRODUCT INFORMATION

**Apple II Video Overlay Card,**  
\$549

**Apple IIc Plus,** \$1099

**System Disk 5.0,** \$49

Apple Computer Inc.  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 996-1010

**AppleWorks 3.0,** \$249

**AppleWorks GS,** \$299  
Claris Corp.  
5201 Patrick Henry Drive  
Santa Clara, CA 95052-8168  
(408) 987-7000

### HyperStudio

Roger Wagner Publishing  
1050 Pioneer Way  
Suite P  
El Cajon, CA 92020  
(619) 442-0524

\$129.95

\$65/system site license

\$35/system

software-only site license

### The New Print Shop

Broderbund Software  
17 Paul Drive  
San Rafael, CA 94903-2101  
(415) 492-3200  
\$49.95

### Publiah It! 2

Timeworks  
444 Lake Cook Road  
Deerfield, IL 60015  
(312) 948-9200  
\$129.95

### TransWarp GS

Applied Engineering  
P.O. Box 5100  
Carrollton, TX 75011  
(214) 241-6060  
\$399





# Break the IIGs sound barrier

Audio Animator™. All of the Sonic Blaster's features plus MIDI and external mixer

Our new Audio Animator transforms your IIGs from a beep box to a boom box! We've combined a true MIDI interface with a stereo digitizer, a stereo playback machine, an external mixer, and enough powerful, feature-laden software to unleash the sound potential your IIGs was born with. Take full control over MIDI compatible instruments, or record and play back digitized sounds with unsurpassed accuracy and quality.

## Digitizing

Record sounds from your own stereo, CD player, television, or VCR, even a microphone. Audio Animator's built in oscilloscope lets you control recording levels visually and analyze inputted data. The zoom function permits you to "see" what your recording looks like in a graphical format. You determine the optimal balance between desired fidelity and available memory.

Audio Animator even has an on-board Analog to Digital converter to sample at an extremely fast rate (37,000 times a second), and with sound quality near that of a compact disk. With it, you'll obtain far higher levels of fidelity than with the GS's Ensoniq chip alone.

## Play back on your own speakers

The Audio Animator includes *input/output and thru* for MIDI (Musical Instrument Digital Interface) devices. Play and record melodies on a MIDI instrument, edit them and play them back through any MIDI compatible instrument. If fact, Audio Animator lets you daisy-chain up to sixteen MIDI devices.

Audio Animator comes complete with an

external mixer to allow easy access to volume and record levels and microphone controls. Connect a drum machine, keyboard, stereo, CD player, even another computer... all without disturbing the GS.

## Software, Too.

The powerful, mouse driven software we include presents you with easy to use pull-

- Editing functions such as fade-in, fade-out, backwards, echo, silence, and amplify
- Compatible with standard MIDI file formats including AIFF (Apple Information File Format)
- Sequencer supports 2:1 and 2.67:1 file compression
- MIDI quantization to 1/32 resolution and transposition



Compare Audio Animator with any other MIDI device or sound digitizer on the market. For completeness of the package, ease of use, quality, and an unmatched list of features... you'll choose Audio Animator.

Audio Animator ..... **\$239**

down menus and SUPER HI-RES graphics that make the Audio Animator almost as much fun to see as it is to hear.

The MIDI portion of the software is an 8-track, 16 channel MIDI sequencer with separate channel record and playback filters and a number of editing functions like cut, copy, paste, punch in, punch out, and many more.

## Features:

- Passport compatible MIDI interface
- Stereo input and output adjustable from external mixer
- Mixer has DIN connectors for MIDI in, MIDI out, and MIDI thru
- Compatible with all software utilizing the Ensoniq output
- On-screen oscilloscope and VU meter to monitor inputs

## Order Today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send a check or money order to Applied Engineering. MasterCard, VISA, and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

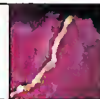
*The Apple enhancement experts.*

A Division of AE Research Corporation

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Memory requirement - 512K (1 MEG recommended)  
Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders



Claris' California headquarters earlier this year. The company has been working steadily on upgrades that address the program's difficulties, however (see "AppleWorks GS Upgrade," June 1989, p. 54), and System 5.0 has turned out to be of more help than any other fix.

In many ways the jury is still out on AppleWorks GS. The release of AppleWorks 3.0 certainly won't help the bigger program's sales; the sheer size and ambition of the product, however, make it significant. All signs point to the success of AppleWorks GS.

#### HOW DOES THE GS STACK UP?

Apple II users haven't been exactly screaming for HyperCard for their machines. Perhaps GS owners were too concerned with things like speed and memory to get caught up in "hypermedia." Apple II users don't live in a vacuum, though—they couldn't help but hear Mac enthusiasts talking about "stacks," "buttons," "cards," and so on, as well as the concept of programming without *really* programming.

In 1989, Roger Wagner's **HyperStudio** hardware/software system answered a question many GS owners had but didn't know how to ask: They wanted a way to make painting and drawing programs work with sound products. HyperStudio is the medium that lets you tie together the GS' sound and graphics capabilities. In short, it lets you create

integrated, infinitely detailed audiovisual databases called *stacks*. You can link each stack to others to produce applications of endless variability. (See "Hypertext for Your GS," Editors' Choice, August 1989, p. 108, and "Does HyperStudio Stack Up?" September 1989, p. 44.)

For example, one stack might illustrate and discuss the human body. Clicking on a *button* (an icon) on the heart shown on an initial *card* (a screen) could send you to another stack that details the functions of that organ. As with HyperCard on the Mac, you can either create your own stacks (using HyperStudio's built-in text, graphics, and sound software, or importing files created with other programs) or boot up a stack designed by another user. As HyperStudio catches on, expect to obtain stacks from a variety of commercial and public-domain sources.

#### MORE ON 1989

System Disk 5.0, TransWarp GS, AppleWorks 3.0, AppleWorks GS, and HyperStudio may have been the year's dominant products, but they weren't the only significant events. For more insight into developments in 1989, Senior Editor Paul Statt discusses the year in productivity (p. 72), while Technical Editor Bill Kennedy looks at the year in technology (p. 78) and Review Editor Lafe Low runs down the year in entertainment (p. 84). □



## The Year in Productivity

By PAUL STATT • SENIOR EDITOR

TOP WISHING—IF YOU'RE WAITING for word from Apple Computer that the Apple II is a serious productivity machine, every year is, as the American writer Ambrose Bierce defined it, a period of three hundred and sixty-five disappointments.

But even without Apple's help, 1989 wasn't a bad year. No bad spreadsheet, word processor, or database manager; in fact, only three significant new pro-

ductivity programs for the Apple came out in 1989. All are good, and some helpful new hardware and support software arrived, too.

AppleWorks tells most of the story. Claris launched AppleWorks 3.0, with a big boost from Beagle Bros ("A New Classic," August 1989, p. 44, and "Life with AppleWorks," this issue, p. 90); Stone Edge finished DB Master Professional, its relational database manager ("DB Master

Pro: In a Class by Itself," March 1989, p. 39); and Beagle Bros released TimeOut ReportWriter, a relational report generator for AppleWorks that challenges Stone Edge.

To support the big three new products, the new **Apple II GS** (see "More for Your Money," What's New, October 1989, p. 16) has enough memory—1 megabyte—and a faster operating system in the new **System Disk 5.0**, if you ever need it. (See "From a Trot to a Gallop," November 1989, p. 64, for more information.) **TransWarp GS** ("Breaking the Speed Limit," August 1989, p. 50, and Editors' Choice, March 1989, p. 104) makes the machine fly at 7 megahertz—at least twice the old speed—and prices of hard-disk drives came down as more manufacturers built them. (See "Which One to Buy? Drives: Part 2," April 1989, p. 47, for details on the leading contenders.)

#### SIBLING RIVALRY

It's easy to imagine what a relational database is like, if, like most people, you have relations. Picture your family tree. Like a tree, a ►



# Think Hard Drive

## OverDrive



**20 megabytes**  
**\$499**

## Apple 3.5" Drive



**800 Kbytes**  
**\$429**

The question you may be asking yourself is, "Why is the OverDrive only \$499 while other 20 megabyte hard drives cost \$650?". The first answer to that question is... "It takes Ingenuity to make quality affordable". Secondly, Applied Ingenuity and the dealers that carry Applied Ingenuity's products really care about the Apple II users. As Apple users ourselves we grew tired of paying high prices for hardware, so we set about to make products affordable by efficient manufacturing techniques and by not making a killing on every sale, giving you more money left over to buy the extra hardware and software you want. So if your dealer doesn't carry Applied Ingenuity, go to one that does!

Applied Ingenuity innovated the internal hard drive for the IIs, and the first 16 bit data transfer. With a track record of over a year and several thousand units in service you can bet that products from Applied Ingenuity are as good as they come

and are the best value ever for the Apple II computers. OverDrive is compatible with the IIs, IIfx, II+, and the Laser 128 computers.

### Features:

- 6 megabytes of free software.
- 16 bit data transfer.
- Formatted and ready to run.
- Complete with controller card and cables.
- Compact size.
- 100% compatible with ProDos.
- Powerful hard disk utility programs
- Probably the fastest hard drive in its class

**OverDrive 20 Megabytes \$499, 40 Megabytes \$699**  
**Falcon 10 Megabytes \$299**  
**SCSI 20-720 megabytes CALL**



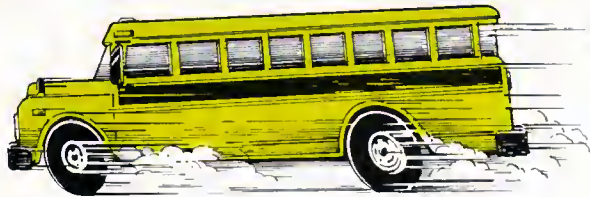
**Applied Ingenuity**

**Call Now 800-346-0811** or inside CA **818-960-1485**  
**14922M Ramona Blvd Baldwin Park, CA 91706**  
or see your Dealer.

Prices subject to change without notice

Circle 47 on Reader Service Card.

# GET ON THE FAS-TRACK!



Call us for your FREE 1989 Best Sellers Catalog—64 pages of software, hardware and accessories.

**DISCOUNTS UP TO 45% EVERYDAY!**

## Productivity Software

AppleWorks 3.0	\$169.95
AppleWorks GS	\$199.95
Copy II Plus	\$22.95
HyperStudio	\$84.50



## TimeOut Series

AppleWorks Starter Pack	\$84.95
-------------------------	---------

BeagleWrite (Multiscribe)	\$47.95
BeagleWrite GS (Multiscribe GS)	\$57.95
Superfont or Telecomm	\$37.50
GS Font Editor or Program Writer	\$28.45
Thesaurus or Powerpack	ea \$27.95
Desktops I or II	ea \$27.95
Sidespread or File Master	ea \$27.95
Spreadtools or Ultramacros	ea \$34.45
Graph or ReportWriter	ea \$42.95

## Desktop Publishing & Graphics

Publish It! 2	\$74.95
Children's Writing and Pub Center	\$36.95
Print Shop	\$28.95
Print Shop IIgs	\$36.95
Pow Zap Ker-Plunk Comic Maker	\$29.95
VCR Companion	\$29.95
Print Shop Lovers Utility Set	\$25.95
Labels, Labels, Labels	\$25.95

## AMR AS800 3.5" Drive



\$189.95
IIgs & IIc+
Daisy-Chainable

## Other Hardware

Apple IIe 80 Column 64K Card	\$24.95
Computer Eyes for IIgs	\$199.95
ThunderScan	\$169.95
FingerPrint GSI Ver 3	\$92.95

## Zip Technologies



\$169.00	8 Mhz Zip Chip
\$119.00	4 Mhz Zip Chip
\$245.00	8 Mhz Zip IIgs

## Applied Engineering



GS Ram Plus w/1 Meg	\$254.95
RamKeeper	\$149.95
Vulcan 20 Meg Hard Drive	\$474.95
Vulcan 40 Meg Hard Drive	\$614.95
TransWarp IIgs	\$289.95
Sonic Blaster	\$99.95
RamWorks III w/256K	\$154.95

256K Drums (set of 8)	\$39
1 Meg Drums (set of 8)	\$109

## Education

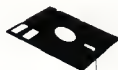
Where in Time is C. Sandiego	\$27.95
Where in the World is C. Sandiego	\$25.95
Where in the USA is C. Sandiego	\$28.95
Math Blaster or Word Attack Plus	\$29.95
Math Blaster Mystery	\$29.95
Oregon Trail	\$25.95
Designasaurus (IIgs)	\$30.95
Crossword Magic	\$30.95
Math Rabbit or Reader Rabbit	ea \$26.95
Talking Reader Rabbit (IIgs)	\$35.95
Writer Rabbit	\$29.95
Mavis Beacon Typing (IIgs)	\$33.95

## Entertainment

Test Drive II—The Dual (IIgs)	\$26.95
Jack Nicklaus Golf (IIgs)	\$29.95
Scrabble	\$25.95
Life and Death (IIgs)	\$33.95
Keef the Thief (IIgs)	\$33.95
War in Middle Earth (IIgs)	\$33.95
Wheel of Fortune 1, 2 or 3	ea \$9.95
Chessmaster 2100 (IIgs)	ea \$33.95
Arkanoid II Return of DOH (IIgs)	\$21.50
Battle Chess (IIgs)	\$29.95
Might and Magic I or II	\$33.95
Earl Weaver Baseball	\$26.95

## Accessories

ImageWriter Black Ribbon	\$25.50
ImageWriter 4-Color Ribbon	\$5.75
10 DS/DD 3.5" Bulk Diskettes	\$9.95
25 DS/DD 5.25" Bulk Diskettes	\$9.95
5.25" Disk Case (Holds 60)	\$6.95
3.5" Disk Case (Holds 40)	\$6.95
System Saver IIgs	\$69.95



**FAS-TRACK**  
COMPUTER PRODUCTS

7030C Huntley Road • Columbus, Ohio 43229

ALWAYS CALL **1-800-272-1600**

TOLL-FREE

**1-800-438-1168** (Ohio)

**1-614-847-4050** (Central Ohio)



U.S., F.P.O., and A.P.O., add 3% (minimum \$4.00) for each shipment. No C.O.D. in Ohio, add 5.5% Sales Tax. MasterCard, VISA, and American Express—No extra charge. We accept purchase orders from schools, universities and other qualified organizations.

FROM HOME TO SCHOOL AND BACK AGAIN, FAS-TRACK DELIVERS!

## The Year in Productivity

relational database has branches—sons and daughters branching out from parents. But families aren't simple. Your mother, for instance, may also be somebody's sister-in-law. If your mother were a record in a database file, she'd need to be in at least two places at once—the file of her family members, and the file of her husband's family.

The file with the records of your mother's family, for instance, could be linked with the file of your father's people, through your mother's record. It's a simple enough idea, but try to do it with AppleWorks. With **TimeOut ReportWriter**, though, you can link AppleWorks word-processing and spreadsheet files as well as database files.

Stone Edge's relational database manager, **DB Master Professional**, not only links separate files, but also performs those two other basic functions: Its simple text editor is all a small company needs to write dunning letters, for instance, and its calculated fields can handle inventory as well as a spreadsheet. You may not want or need a fully integrated relational database, spreadsheet, and word processor.

How do DB Master and ReportWriter compare? The TimeOut product turns your AppleWorks database into a relational reporter; if you really want integrated software and relational reporting, AppleWorks and ReportWriter are a good choice. But DB Master is better for business because it's easy to set up as a "point of sale" computer. You can even enter information with a bar-code reader, in addition to printing invoices and tracking inventory.

A major difference is that DB Master works with records on disk, while AppleWorks works with records in memory. This means that DB Master can handle unlimited numbers of records—that's why it's perfect when you can't know in advance how many records you'll need—while AppleWorks is limited by the amount of random-access memory (RAM) in the computer. It also means that for DB Master conventional methods of revving up your computer don't speed things up as much as a disk accelerator, such as Ohio Kache Systems' **Multi-Kache Card**. (See "Breaking the Speed Limit," August 1989, p. 50, for more information.)

## NEWEST AND GREATEST

**AppleWorks 3.0** has a spelling checker and real tabs in the word processor. It's better integrated than its predecessors, and adds 26 new functions to the spreadsheet. Even though it runs on 8-bit Apples (as do ReportWriter and DB Master Professional), AppleWorks 3.0 is best suited for use with a GS with a 3½-inch disk drive. The new AppleWorks is too big to fit on a 5¼-inch disk, and you'll want extra memory for a RAM disk.

AppleWorks 3.0 almost does it all. But it lacks *macros*—the ability to automate jobs. Look to **TimeOut UltraMacros** (Reviews, May 1989, p. 34) and **MacroTools I and II** (Reviews, October 1989, p. 100). Cleverer people than we have written many useful shortcuts—one may do just the billing job you need, or the gradebook. A good place to find them is the **AppleWorks Programmers Association**. (See "Two New Developer Organizations," What's New, November 1989, p. 18, for more information on this recently formed group.)

AppleWorks 3.0 still lacks graphics and a thesaurus, and can't print spreadsheets sideways. Programs like **Graph It!** (Reviews, October 1989, p. 30) and **Sideways** (Reviews, February 1987, p. 26) can pick up the slack, but, again, the easiest way to integrate extra functions into



# GE Information Services **GE<sup>TM</sup>nie**

A summary of your monthly charges:

Description	Time	Cost
■ Download 3 Files . . . . .	1:00	6.00
■ Read messages on 2 bulletin boards . . . . .	0:15	1.50
■ Check 10 stock quotes . . . . .	0:05	.92
■ Read today's news . . . . .	0:10	1.00
■ Play Stellar Emperor . . . . .	0:30	3.00
Total hrs. non-prime/1200 baud . . . . .	2:00	

**Total Cost . . . \$12.42**

# CompuServe<sup>®</sup> Monthly Summary

A summary of your monthly charges:

Item	Hours	Cost
-Download 3 Files . . . . .	1:00	12.50
-Read messages on 2 bulletin boards . . . . .	0:15	3.13
-Check 10 stock quotes . . . . .	0:05	1.24*
-Read today's news . . . . .	0:10	2.08
-Play MegaWars III . . . . .	0:30	6.25
Total hrs. non prime/1200 baud . . . . .	2:00	

**Total Cost . . . \$25.70**

Network surcharge \$.50

\*.02/quote surcharge non prime

# It doesn't take a computer to figure out the difference.

The difference between the GE<sup>TM</sup>nie service and CompuServe<sup>®</sup> could make a big difference to you. Here's why. GE<sup>TM</sup>nie's rate for 1200 baud access is just \$6 per non-prime hour\*. There's more than twice as much. Which means that with GE<sup>TM</sup>nie you can stay online longer for a whole lot less.

And that means more time to enjoy more of GE<sup>TM</sup>nie's services. Like valuable computer RoundTables.

Exciting multi-player games. Useful financial information and much more. All at hourly rates designed to allow you to spend more time online. Not more money.

And with GE<sup>TM</sup>nie signing up is as easy as one, two, three.

- (1) Set your modem for local echo (half duplex), 300 or 1200 baud.
- (2) Dial 1-800-638-8369. When connected, you just enter HHH.
- (3) At the U#= prompt simply enter

XTX99630,GE<sup>TM</sup>nie then RETURN. And have a major credit card or your checking account number ready. For information in the U.S. or Canada, call 1-800-638-9636. Or write GE Information Services, 401 North Washington, Rockville, MD 20850.



**We bring good things to life.**



AppleWorks is with Beagle Bros' **TimeOut Thesaurus**, **Graph**, and **SideSpread** (Reviews, May 1988, p. 29).

#### PICK SIX

Another major 1989 release, **AppleWorks GS**, doesn't need software support; its advantages over AppleWorks 3.0 are that it has built-in telecommunications, graphics (painting and drawing), and desktop publishing, in addition to the word processor, database, and spreadsheet. (See "AppleWorks GS: Worth the Wait?" March 1989, p. 34, and "Ten Tips and Hints," June 1989, p. 52.) The three main functions are noticeably slower than their text-based AppleWorks 3.0 analogues; you'll need TransWarp GS to use AppleWorks GS seriously.

### PRODUCT INFORMATION

**Apple IIgs**, \$2506  
**System Disk 5.0**, \$49  
Apple Computer Inc.  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 996-1010

**AppleWorks 3.0**, \$249  
**AppleWorks GS**, \$299  
Clarix Corp.  
5201 Patrick Henry Drive  
Santa Clara, CA 95052-8168  
(408) 987-7000

**AppleWorks**  
**Programmers Association**  
6531 Lexington Ave.  
Los Angeles, CA 90038-1451  
(213) 467-6922

**Cross-Works**  
SoftSpoken  
P.O. Box 97623  
Raleigh, NC 27624  
(919) 878-7725  
\$79.95

**DB Master Professional**  
Stone Edge Technologies  
P.O. Box 200  
Maple Glen, PA 19002  
(215) 641-1825  
\$295

**Floating Point Engine**  
Innovative Systems  
P.O. Box 444  
Severn, MD 21144-0444  
(301) 987-8688  
\$229

**Graph It!**, \$49.95  
**Publish It! 2**, \$129.95  
Timeworks  
444 Lake Cook Road  
Deerfield, IL 60015  
(312) 948-9200

**Multi-Kache Card**  
Ohio Kache Systems  
4162 Little York Road  
Suite E  
Dayton, OH 45414  
(513) 890-3913  
\$375 256K  
\$550 1MB  
\$40 disk expander  
\$95 SCSI hard-drive option

**Microsoft Works**  
Microsoft Corp.  
10700 Northup Way  
Bellevue, WA 98009  
(206) 882-8080  
\$295

**PC Transporter**, \$499  
**TransWarp GS**, \$399  
Applied Engineering  
P.O. Box 5100  
Carrollton, TX 75011  
(214) 241-6060

**Point-to-Point**, \$99.95  
**TimeOut Graph**, \$89.95  
**MacroTools I**, \$25  
**MacroTools II**, \$25  
**ReportWriter**, \$79.95  
**SideSpread**, \$49.95  
**SuperFonts**, \$79.95  
**Telecomm**, \$69.95  
**Thesaurus**, \$49.95  
**UltraMacros**, \$59.95  
Beagle Bros Inc.  
6215 Ferris Square  
San Diego, CA 92121  
(619) 452-5500

**Sideways**  
Funk Software  
222 Third St.  
Cambridge, MA 02142  
(617) 497-6339  
\$69.95

**Works-to-Works Transporter**  
Productivity Software  
available through  
on-line services

Just about anything AppleWorks GS can do, AppleWorks 3.0 can be made to do: AppleWorks GS has its own telecommunications module, for instance; AppleWorks 3.0 doesn't. But this year Beagle Bros cornered the Apple II telecommunications market. It bought the popular **Point-to-Point**, which works just like AppleWorks, and introduced **TimeOut Telecomm**, which works within AppleWorks.

AppleWorks 3.0 also can't print anything but text. Some projects require pictures and fancy type—sometimes called desktop publishing. The bare minimum for an Apple II desktop publisher is **TimeOut SuperFonts** (Reviews, May 1988, p. 33): It prints AppleWorks files in different type styles on a dot-matrix printer. For page layout, Timeworks' **Publish It! 2**, the most popular Apple II desktop-publishing program, imports AppleWorks files. AppleWorks users who want to publish may like the AppleWorks GS alternative, but if you don't want to publish, you'll be giving up a lot of speed.

And to create pictures of your numeric or financial information, Timeworks' **Graph It!**, as mentioned above, produces charts from AppleWorks spreadsheet data; TimeOut Graph from Beagle Bros offers fewer choices for types of charts, but works within AppleWorks.

#### TALKING TO OTHER SYSTEMS

It's a fact that most offices use IBM-compatible MS-DOS computers; many Apple Macintoshes are found in businesses today, too. But you can still work on an Apple II. Apple has made the II-to-Mac connection especially easy—in fact, you can network IIs to AppleTalk, the Apple network that requires a Mac file server. It's surprising that more businesses don't use many cheaper, easier-to-use Apple IIs as workstations, networked to a few faster, more powerful Macs, especially useful for desktop publishing. *inCider* does. **Apple File Exchange**, found on all Mac systems, makes it easy to convert from ProDOS to Macintosh files. If your Mac uses **Microsoft Works**, **Works-to-Works Transporter** from Productivity Software makes it even easier. This software uses the Apple File Exchange program, but lets you convert AppleWorks files directly to Microsoft Works and vice versa. Otherwise you must convert Works or AppleWorks files to ASCII text first.

If you need MS-DOS compatibility, Applied Engineering's **PC Transporter** (see June 1988, p. 77) lets your Apple II run IBM software—that makes it practical to have an Apple II at home and an IBM PC at work. A software utility called **Cross-Works** (Reviews, July 1989, p. 36) makes transfer of files easy without additional hardware.

IBM types also like to talk about the business advantages of math coprocessors. Fanatic Apple II spreadsheeters can get a taste of this technology with the **Floating Point Engine**, an ingenious device that speeds up mathematical operations in the Apple IIe and GS. It doesn't do much for word processing, but it really makes spreadsheet calculations fly. (See "Breaking the Speed Limit," August 1989, p. 50, plus our review in this issue, p. 118, for details.)

#### THE DREAM MACHINE

If I were dreaming up an Apple II office, I'd start with an Apple IIgs; in its new standard 1-megabyte configuration, and running twice as fast as an Apple IIe, it's plenty. I'd use a couple of 3½-inch disk drives, unless I grew to have so many records I needed a hard-disk ►



# "COPY II PLUS<sup>®</sup>

WIPE, REFORMAT AND DELETED ITS COMPETITION<sup>™</sup>

—inCider

*Disk Utilities • Backup Program for Copy-Protected Disks*

♦ **AWARD-WINNING UTILITIES.**

Over 20 built-in utilities, including the ability to delete and undelete files, map disk usage, copy disks and files, view and print files, format and verify disks, and alphabetize the catalog. Also contains drive diagnostics for checking and adjusting drive speed. Plus much more—all in an easy-to-use menu perfect for both novices and professionals.

♦ **VERSATILE PERFORMER.** Copy II Plus enables you to convert DOS 3.3 files to ProDOS files and vice versa—automatically.

♦ **SUPPORTS THE IIcs.** Runs great on the IIcs, and makes full use of Apple 1-Megabyte RAM boards.

♦ **PROTECT YOUR SOFTWARE INVESTMENT.** Make backup copies of protected and unprotected programs—even those with the most sophisticated protection schemes. Use Copy II and you'll always have a backup handy should anything happen to your original disk.

♦ **EASY TO USE.** Backup parameters for most programs are already on the disk. Simply select which program you want to backup, insert that program disk and you're off. Data and unprotected disks are copied in less than a minute and require only two passes on an Apple IIc, Laser 128 or IIcs.

Take a look at Copy II Plus today and see why inCider magazine says Copy II Plus deleted its competition. **For the dealer nearest you, or to order direct, call (503) 690-8090, M–F, 8 a.m.–5 p.m. (West Coast time).**

**Hardware requirements.** Apple II or Laser computer with 128K memory and one disk drive.

3.5-inch bit copy requires Laser 128EX or IIcs (or Apple II computer with Central Point Universal Disk Controller) and a 3.5-inch IIcs, Chinon or Laser drive.

Copy II Plus is a trademark of Central Point Software. Apple II, IIc, IIe and IIcs are trademarks of Apple.



\$39.95

*Central Point  
Software*  
INCORPORATED

15220 N.W. Greenbrier Pkwy. #200  
Beaverton, Oregon 97006  
(503) 690-8090



drive. I'd run AppleWorks 3.0 for word processing, database management, and spreadsheet manipulation, with a little help from TimeOut ReportWriter and a lot from TimeOut UltraMacros. I'd either write or buy macros that took most of the drudgery out of my work.

If I ran a business for which I needed invoices, inventory control, or a point-of-sale computer, I'd have to pick DB Master Professional for my database work. If attractive presentations or a newsletter were important, I'd use Publish It! 2. If I decided to do some desktop publishing on a regular basis, I'd also save myself a lot of

time and headaches with TransWarp GS, but if not, I wouldn't need the accelerator.

The word *mature* describes computers as it describes women—it sounds like something unattractive, but it's not. The Apple II is a mature machine: It's trouble-free; there's a big group of users willing and able to help; and you can be sure it'll be good for ten years because it has already passed that test. Together with AppleWorks or DB Master—two examples of mature software—the GS can run almost any business elegantly. □



## The Year in

# Technology

By WILLIAM P. KENNEDY + SENIOR TECHNICAL EDITOR

NINETEEN EIGHTY-NINE WILL be remembered as the year the Apple II family matured technologically: Several products, some not even new, surfaced in 1989 to rejuvenate the tired 8-bit Apple IIe and IIc and thrust the IIGS into the arena of "serious" machines.

### PRESS IT TO THE FLOOR

Speed is the first and perhaps most apparent technological innovation to accelerate in 1989. Speed is the foundation for building your Apple II into a computer for the 1990s. And speeding up your II is easy as well as fairly inexpensive. But what's the rush?

The 6502 or 65C02 microprocessor—the "brain" of your Apple II Plus, IIe, or IIc—operates at about 1 million cycles per second (1 megahertz, or MHz). That may sound incredibly fast, but remember that virtually all activities your Apple II performs involve the microprocessor—and even the simplest task, such as adding 2 and 2 and displaying the result on screen, can require thousands of machine cycles to complete. It's not surprising, then, that the more complex the task, the more cycles required and, consequently, the more time it'll take to happen.

Software for the Apple II has evolved exponentially over the last 11 years from simple text screens of information that require on average, say, slightly fewer than a million cycles to display, into elaborate, graphical "desktop" environments that take tens of millions of cycles to produce. And that's only what you see. Commands or data you used

to type on the keyboard are now selected from nested menus, or icons you point at and choose at the click of a mouse button. Such innovations in software have caused an equally exponential demand on your Apple system's software—the collection of rudimentary software utilities known as the *operating system* (OS), which manages screen displays and data input and output from keyboard to printer and disk drive.

Apple recognized the pressure for a more sophisticated Apple II system and, in 1986, introduced the GS. It not only has the electronics for a richer graphics display (super high resolution) and a special chip for exceptional sound synthesis (the Ensoniq), but it contains a microprocessor better designed to operate such an elaborate system: the 65816, which can directly access more memory, operates about 2.5 times faster, and can handle twice as much data at one time (16 versus 8 bits) than its predecessors.

Unfortunately, when introduced, the GS' operating system wasn't optimized for the hardware's capabilities. Some aspects, including the original disk OS, were simply reworked versions of old 8-bit programs. Nor could the GS' increased speed and data size compensate for the massive amounts of data overhead required to operate the desktop environment, dictated by Apple's own Human Interface Guidelines.

So while the GS ran with IIe or IIc software such as AppleWorks, it crawled like a baby when attempting to execute programs meant to take advantage of its native capabilities. Even booting into its own operating system was excruciatingly lethargic, prompting some critics to lament that GS stood for not *graphics and sound*, but "go slow."

### CAUGHT SPEEDING

The GS' faster speed, however, did whet appetites for faster IIes and IIcs. The **TransWarp** card makes a IIe operate slightly faster than a ►





# Be Cool

## ***Conserver™. The Integrated Disk Drive Organizer/Switched Power/Cooling Fan***

Heat is your computer's most insidious enemy. Peripheral cards allow you to do wonderful things with your computer, but they unavoidably produce heat inside your cpu. Load a IIGS with several peripheral cards and that heat is multiplied. Heat-related failures become a real (and devastating) possibility.

Conserver™, from Applied Engineering, effectively cools your IIGS while it protects against power surges and helps organize a cluttered work-space.

Conserver's quiet but powerful cooling fan efficiently maintains a safe operating temperature at all times. Drawing air from the top of the IIGS at a rate of 18 cubic feet per minute, Conserver offsets the heat produced by expansion cards. In fact, tests show a IIGS operates more than 20 degrees cooler with a Conserver than without. The difference can be critical to the life of your computer.

Power surges are another invisible risk to your computer's well-being. Power surges occur when voltage spikes surge through your wiring looking for a place to dissipate. If that place is inside your computer, you'll very quickly gain a greater understanding of the laws of electricity. It's not a pretty sight.

Conserver incorporates special line

conditioning filters and dual surge suppression circuitry to protect against surges, reduce noise and provide "clean" power. Six switched AC power outlets line the rear of Conserver to

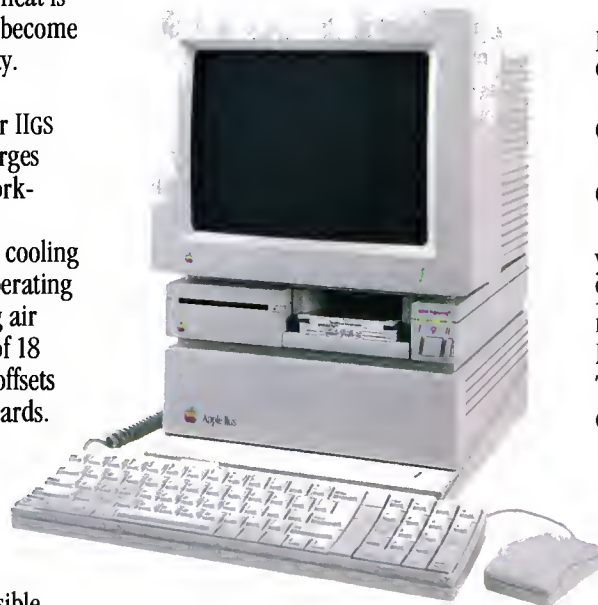
perfectly matched platinum color. To reduce desktop clutter, the unit was cleverly designed to house two 3.5" disk drives, or one drive and the special diskette holder we include.

Conserver. The cool, safe choice to protect your IIGS from its invisible enemies.

**Conserver .....\$119**

### **Order Today!**

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.



accommodate your computer, monitor and four other peripherals. Thus protecting your computer and your peripherals from surges. The outlets are conveniently controlled by three front-mounted switches with LED indicators.

For beauty, we gave Conserver the same sleek lines of the IIGS and a

**AE APPLIED ENGINEERING®**

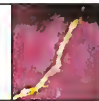
*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.



GS when inserted into an expansion slot; it substitutes its microprocessor without physically replacing the original 65C02. Although introduced before the GS, TransWarp probably enjoyed enhanced sales after the appearance of the GS.

The importance of speed and its benefits also made overnight successes, late last year, of the **Zip Chip** and the **Rocket Chip**, which do physically (and less expensively) replace the IIe's or IIc's microprocessor. Apple even took the cue and brought out the **IIc Plus**, which contained, among other, less-exciting innovations, a 4-MHz 65C02. Those successes prompted the development of even faster 8-bit chips, released this year; from 4- to 5-MHz originals into 8- to 10-MHz speed demons.

The speed snowball is unlikely to stop. The 7-MHz **TransWarp GS** expansion card was introduced this past spring at Boston AppleFest to a crowd that seethed like sharks in a feeding frenzy. And you can almost drown in the collective sweat of anticipation for a Zip or Rocket replacement microprocessor for the GS' 65816. (See Reviews, September 1988, p. 28; Editors' Choice, March 1989, p. 104; "Breaking the Speed Limit," August 1989, p. 50; and "A Little More for a Little Less," November 1988, p. 50, for more information on the products discussed in this section.)

### GO SLOW NOW HAS GOT SOMETHING

The addition of a faster microprocessor to the IIe and IIc dispelled criticisms that those 8-bit machines are antiquated. In fact, AppleWorks, operating at 10 MHz, can easily outperform similar contenders operating on a Macintosh Plus or the 8086/88-based IBM PC and its clones. The newest **AppleWorks, version 3.0**, has made that most popular program into an integrated package no one should pass up ("A New Classic," August 1989, p. 44, and "Life with AppleWorks," this issue, p. 90). But what about the GS?

This past summer, Apple finally introduced a version of the GS' operating system, **System Disk 5.0** (GS/OS v.5), that truly befits its

hardware host ("From a Trot to a Gallop," November 1989, p. 64). The first version with the moniker GS/OS (v.4) was released in 1988 and principally updated the disk OS, but barely addressed the aforementioned lack of speed when dealing with desktop environments. (See "GS/OS," November 1988, p. 56.)

In GS/OS v.5, the Apple II engineers overhauled the system's software and added both speed and performance. For example, desktop windows snap open and closed four times faster than in earlier versions. And the new ExpressLoad feature, which manufacturers may append to their GS software products, can speed the booting of applications by a factor of 10 or more.

GS/OS v.5 is software, but it makes the GS into an all-new machine—all for just \$49 (free if you supply the disks for copies). **AppleWorks GS** is no longer that desktop behemoth; under GS/OS v.5, it operates quite comfortably as an excellent desktop-publishing tool if not more simply as the GS version of the original ("AppleWorks GS: Worth the Wait?" March 1989, p. 34, and "Ten Tips and Hints," June 1989, p. 54).

And if the IIe or IIc with a TransWarp, Zip, or Rocket Chip has you excited, you ought to see the 16-bit machine operate with a TransWarp GS. Was I speeding again, Officer?

### SERIOUSLY HARD-HEADED

The disk drive wasn't neglected in this year of speed, either. But why in 1989 did almost every Apple II owner at least think seriously about buying a hard drive if he or she didn't actually purchase one? After all, hard disks have been around almost as long as the Apple II itself.

Although there aren't any marketing data to support the premise, many in the industry believe that most of those hard disks sold to Apple II owners are probably attached to GSes. That's because without one, launching applications, even with GS/OS v.5, is a time-consuming chore, sometimes requiring several disk swaps. And using the Finder desktop ►

## PRODUCT INFORMATION

### Apple II Video Overlay Card, \$549

**Apple IIc Plus**, \$1099  
**System Disk 5.0**, \$49  
Apple Computer Inc.  
20525 Mariani Ave.  
Cupertino, CA 95014  
(408) 987-7000

**AppleWorks 3.0**, \$249  
**AppleWorks GS**, \$299  
Claris Corp.  
5201 Patrick Henry Drive  
Santa Clara, CA 95052  
(408) 727-8227

### CallBox TPS

So What Software  
10221 Slater Ave.  
Suite 103  
Fountain Valley, CA 92708  
(714) 964-4298  
\$99

### Design Master

Chris Haun  
4009 Pacific Coast Highway  
Torrance, CA 90505  
\$30 for GS/OS v.4  
contact for GS/OS v.5 price

### HyperStudio

Roger Wagner Publishing  
1050 Pioneer Way  
Suite P  
El Cajon, CA 92020  
(619) 442-0524  
\$129.95  
\$65/system site license  
\$35/system  
software-only site license

### InnerDrive

Applied Ingenuity  
14922 Ramona Blvd.  
Unit M  
Baldwin Park, CA 91706  
(818) 960-4415  
\$499 (20MB), \$650 (40MB)

### Rocket Chip

Bits and Pieces Technology  
31332 Via Colinas  
Suite 112  
Westlake Village, CA 91362  
(818) 706-7932  
\$189 5 Mhz  
\$219 10 Mhz

### Sider D9

First Class Peripherals  
3579 Highway 50 East  
Carson City, NV 89701  
(702) 883-4000  
\$1695

### Sonic Blaster, \$129

**TransWarp**, \$169  
**TransWarp GS**, \$399  
**Vulcan**, \$649 (20MB),  
\$849 (40MB), \$1795 (100MB)  
Applied Engineering  
P.O. Box 798  
Carrollton, TX 75006  
(214) 241-6060

### Zip Chip

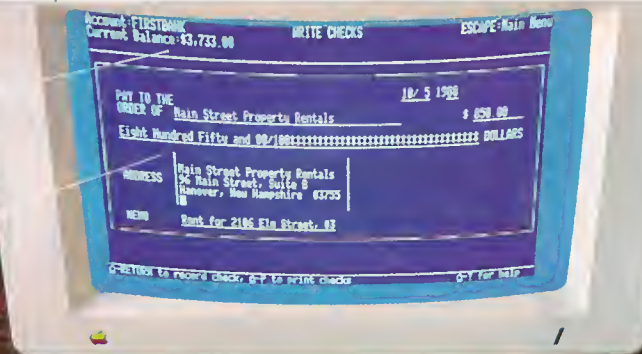
Zip Technology  
5601 West Slausen Ave.  
Culver City, CA 90230  
(213) 337-1313  
\$149 4 Mhz  
\$199 8 Mhz



Quicken automatically updates your check register, recalculates balances, and prints your checks.

Quicken is easy because it looks like your paper checkbook, plus it faithfully follows the AppleWorks user interface.

Quicken can export to AppleWorks for custom reports: Budget vs. Actual, Income and Expenses, P&Ls, and more.

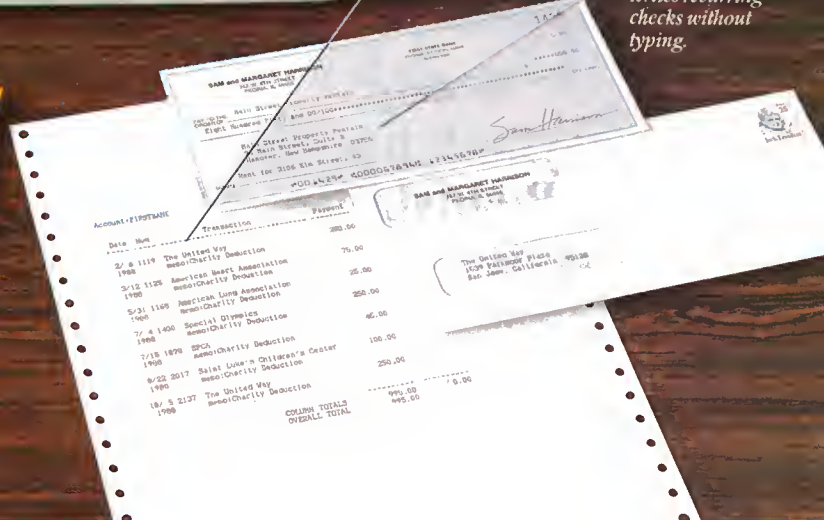


Quicken gives instant financial organization of:

- Spending
- Taxable Income and Deductions
- Rental Property and Job Costs.

Quicken eliminates work. It actually writes recurring checks without typing.

Dramatic Speed on Apple IIGS



# End Financial Hassles. Quicken®, \$59.95

**Q**uicken is the absolute fastest, easiest way to do your personal or small business finances. Quicken saves you hours of time while perfectly organizing your finances.

## Forget Financial Hassle

Quicken is so automatic, it does your financial work for you. It actually learns your regular bills. Just confirm the payment amounts on your auto loan, utilities, or other bills. Quicken does 14 automatic bookkeeping steps and hands you the printed checks already addressed for mailing. All you do is sign them and seal the envelopes. Quicken keeps complete records of your finances so you know exactly how much money you have and where it's going.

## Finish Financial Work in Seconds

Instead of dreading tax time, use Quicken to print itemized lists supporting each tax deduction. Quicken is extremely fast. It does in seconds what used to take many minutes or even hours. Want the year's spending for Job 104 or Account 3072? The answers are just seconds away.

## No Accounting Mumbo Jumbo

Quicken is as easy as the pen and paper you use now. You'll see the familiar checkbook and check register right on your screen. The only thing that changes is how fast you finish your financial chores. This is bookkeeping that's totally hassle-free.

## The World's #1 Selling Financial Software

Here's why Quicken is the world's most popular:

*Thanks to Quicken, I'm automating my personal checking account. I've never seen such an easy-to-use manual or software that's so simple to use.*

Martin Blumenthal, inCider Magazine

*With the power of AppleWorks so readily available, it's more than good...it's indispensable. Home and small business checking software used to be too expensive, too hard to use, and too rigid, and it took too long. Quicken has changed all that.*

Ken Landis, A+ Magazine

## Use Alone or with AppleWorks®

Quicken transfers your data directly to AppleWorks to create customized reports and spreadsheets. That means you can see your finances any way you like.

## Flexible for Personal or Business Use

No other financial software provides more flexibility to handle the wide range of personal or business needs, from personal tax record-keeping to property management. With unlimited income and expense categories, Quicken keeps track of spending by whatever categories you desire.

Quicken works for service and manufacturing businesses, doctors, consultants, designers, and retailers. Quicken is for anyone who wants relief from bookkeeping hassles.

## Try Quicken FREE for 30 Days

Order Quicken from the coupon below, or through our toll-free 800 number. If you're not completely satisfied with Quicken for any reason, simply return it for a full refund. No questions asked.

**Specifications:**  
Compatibility: Apple® IIGS, IIC, IICPlus, IIe (IIe requires extended 80-column card, with one or two floppy disk drives, or hard disk. Any printer. No modem required. AppleWorks is optional.  
Other: FREE technical support. Not copy-protected. Checks are pre-approved by all financial institutions in the U.S. and Canada. Sample checks and order form are enclosed in Quicken package.  
Quicken is also available for the Macintosh.



\$59.95

I want to try Quicken on your no-risk 30-day guarantee. If not completely satisfied, I may return it within 30 days for a full refund. Quicken for \$59.95, includes free shipping by air. California residents add sales tax.

Call 800-624-8742

(in California, call 800-468-8481),

or send this coupon with your check or credit card number to Intuit.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Zip \_\_\_\_\_ Phone \_\_\_\_\_

☐ Apple (5¼" disk) ☐ Apple (3½" disk) ☐ Macintosh

☐ Check enclosed (no purchase orders, please).

☐ Visa ☐ MasterCard ☐ Am Ex

Card Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

**Intuit**

66 Willow Place  
Menlo Park, Ca. 94025-3687



## Ready? EasyLink becomes ReadyLink™

**Ready for this?** Murphy's Law strikes again. The superb new communications software we introduced as EasyLink a few months ago, has become ReadyLink™. Seems we weren't alone in liking that name. But ReadyLink *is* alone as the premiere communications software.

**Ready for a program that learns?** ReadyLink actually "watches" you log on the first time and "learns" how to do it the next time. The program's rich macro language allows you to easily learn to write your own macros.

**Ready for two windows?** ReadyLink's Mac-like interface lets you work two windows at once. Edit text while the on-line window continually updates incoming messages. Access files (or create new ones), cut, copy, paste, find or replace text; then send in perfect, edited form. Even print directly from the window - all without breaking contact with the on-line window.

**Ready for these features?** \*Hayes compatible \*Automatic protocol selection \*Mac-like desktop interface \*Automatic hardware configuration \*Automatic rate calculator \*Built-in conference mode \*Integer variables \*Complex expressions \*Conditional execution \*Subroutines \*Re-assignable keyboard commands \*132-column VT100 emulation \*Supports XModem, XModem/CRC, XModem/ProDOS, YModem (non-batch)

Compare AE's ReadyLink with any other communications software. For completeness of features, ultimately flexibility and ease of use. For beginners and bulletin board junkies alike, ReadyLink does it. **\$99**

**Order today!** To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

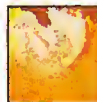
*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



The Year in  
**Technology**



for file management and application launches really makes sense only when operated from a hard disk.

Two innovations in 1989 now make hard disks even more useful: a new Apple-SCSI (small-computer-systems interface) driver included with GS/OS v.5, and the emergence of drives storing more than 64 megabytes.

### BREAKING THE SPEED BARRIER

Once the slowest interface in town, Apple SCSI under GS/OS v.5 now performs some four times faster than its predecessor—about as fast as the proprietary interfaces many hard-drive manufacturers include with their packages. The more-efficient Apple SCSI also opens the Apple II market to the plethora of hard disks previously concentrated on the Macintosh. Let's hope the competition will force manufacturers to lower prices.

Also, GS/OS v.4 broke the 64-megabyte barrier (two 32-megabyte partitions) imposed by ProDOS and prompted companies to release high-storage hard drives. Apple-SCSI-compatible drives can now use the Advanced Disk Utility found on both GS/OS versions to create up to seven partitions, each up to 32 megabytes in size.

First Class Peripherals, a company often first with innovations in the Apple II market, was indeed first to introduce a 90-megabyte drive (**Sider D9**) early in 1989. Several other manufacturers have since offered even 200-megabyte systems.

A final note on hard drives: Internal hard disks for Apple IIs in 1989 include the **Vulcan**, from Applied Engineering, and the **InnerDrive**, from Applied Ingenuity. (See "Which One to Buy? Drives: Part 2," April 1989, p. 47.) They're surprisingly easy to install, and they enhance your entire system by replacing your Apple's power supply with a better one, including a fan.

### ROUNDUP

Several other 1989 products are worthy of mention as technological innovations for the Apple II, as well. **HyperStudio**, from Roger Wagner Publishing, is perhaps the most exciting software to emerge this year. Similar to HyperCard for the Macintosh, HyperStudio merges text, graphics, and sound with a database-like logic system ("stacks") for the creation of GS software without programming in the traditional sense. (See Editors' Choice, August 1989, p. 108; "Does HyperStudio Stack Up?" September 1989, p. 44; and "In the Cards," Speaking of Graphics, October 1989, p. 94, for details.)

For programmers, the most intriguing software developed in 1989 are the WYSIWYG (what you see is what you get) prototyping tools for GS-desktop software developers. With Chris Haun's **Design Master** or So What Software's **CallBox: The Toolbox Programming System**, creating and editing Apple's Human Interface Guidelines desktop simply involves selecting desktop elements from pull-down menus and using a mouse to place them onto the 320 or 640 graphics desktop with clicks and drags. (See "Tech Notes from KC," What's New, November 1989, p. 20.) The result is source code that's compatible with most of the 65816 assemblers and the advanced languages available for the GS, including C, Pascal, and BASIC. Now even the novice programmer can create personalized desktops easily. ▶



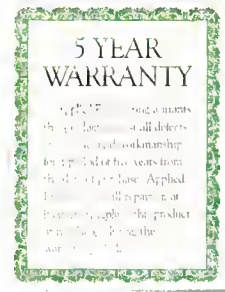
# Why we sell more Apple expansion cards than Apple.<sup>TM</sup>



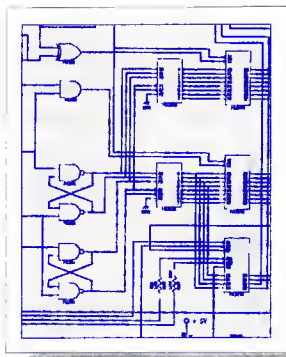
We specialize more.



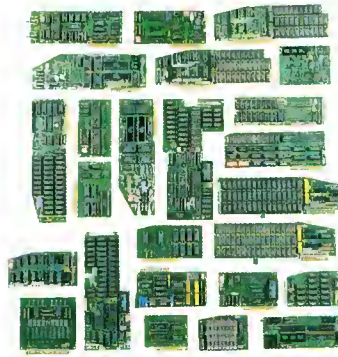
We support more.



We guarantee more.



We innovate more.



We offer more.

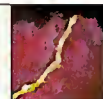


We cost less.

When you add it up, you'll add us on.

**AE** APPLIED ENGINEERING®  
*The Apple enhancement experts.*

P.O. Box 5100, Carrollton, TX 75011, (214) 241-6060



On another note, the “genlock” video technology used by the **Apple II Video Overlay Card**, introduced with great fanfare in 1989, isn’t new. (See “Roll Video,” May 1989, p. 42, and “Reel-World Images,” July 1989, p. 40.) But if you believe all the PR, it just might revolutionize the machine.

The Overlay Card acts by superimposing Apple IIe or GS video text and graphics on top of images from another source, such as a videotape recorder or camera. Hence, you can introduce titles into your favorite home videos, or produce elaborate educational and training products that might highlight “real” pictures with computer-generated pointers or diagrams, and so on.

Finally, Applied Engineering’s **Sonic Blaster** stereo sound card adds

a whole new dimension to the GS. The machine’s own Ensoniq sound chip is quite exciting, but lacks the “back end” electronics to produce high-quality stereo audio output. Sonic Blaster provides that, loud and clear, and more: Its audio-digital recording system can’t be beat. (See Reviews, June 1989, p. 36, and “Face the Music,” October 1989, p. 54.)

#### THE NEXT GENERATION

The innovations of 1989 are impressive. If such speed and performance milestones are surpassed in 1990 as they were in 1989, Apple itself might begin to consider the Apple II a “serious” computer again. We certainly do, and we hope that revelation doesn’t remain a secret known only to diehard enthusiasts. MS-DOS machines, eat our dust! □



## The Year in

# Entertainment

By **LAFE LOW** + REVIEW EDITOR and **PAUL STATT** + SENIOR EDITOR

**T**HIS MAY SOUNDS TRITE, BUT IT’S true—game graphics and animation get better with every new release. At the risk of sounding like a blurb-o-mat, we note that Apple IIGS games feature crisper graphics and more fluid animation than ever this year, and even IIe/IIc games have improved. That over with, let’s say that games are serious fun, and the people who make them are serious about making simu-

lations of reality—in sports, battle, history, and politics—as realistic and challenging as possible.

#### GOOD SPORTS

Game aficionados will remember 1989 as the year of the sports simulation: baseball, football, tennis, skiing (downhill, cross-country, and jumping), luge, ice hockey, mountain climbing, karate, auto racing, bicycling, pole vaulting, gymnastics, archery, track, figure skating, and speed skating. We’re exhausted, and we haven’t even mentioned the *newest* opportunity for a relaxing round of miniature golf: **Gnarly Golf**.

Golf, in both miniature and frustrating versions, has proven to be a hole-in-one in the computer-game business. Simulated mini-golf is more bizarre, thanks to computer graphics and imaginative programmers, than its resort-town cousin, and simulated real golf makes us all feel like good golfers.

Speaking of which, Accolade this year released the sensational

**Jack Nicklaus’ Greatest 18 Holes of Major Championship Golf**. The company’s Mean 18 has long been the standard to which other golf games are compared; now it will be Jack’s Greatest 18. The Golden Bear himself helped design the game that bears his name, and his attention to detail shows.

The three course choices include his personal favorites from championship links all over the world, plus two he designed—Castle Pines and Desert Mountain. In addition, **Jack Nicklaus Presents the Major Championship Courses of 1989**, a supplementary disk, lets you play the sites of the U.S. Open, the British Open, and the PGA Championship this year—Oak Hill Country Club, Royal Troon Golf Club, and Kemper Lakes Golf Club.

Let’s hope these disks appear every year. Course disks for golf games keep your original game perpetually new. Course disks for Mean 18 are even available cheaply now in the public domain.

Course disks of a different type are available for Accolade’s driving simulation, too. **Test Drive II: The Duel**, the long-awaited sequel to the original game, rolled out this year. The detailed display of the cockpit (when driving a car like a Porsche 959 or a Ferrari F-40, *cockpit* is more appropriate than *interior*), the view through the windshield, your perspective from the rear-view mirror, and smoothly scrolling animation make Test Drive II as realistic a driving simulation as we’ve ever seen.

Accolade simultaneously released two add-on disks for Test Drive II, as well—**The Supercars** and **California Challenge**. The Supercars gives you a set of five rocket sleds from which to choose—the same basic models from the first Test Drive—Lotus Esprit, Ferrari Testarossa, Porsche 911 RUF, Lamborghini Countach, and Corvette ZR1. California Challenge lets you see the Golden State from top to bottom as you zip



by in a supercar. *Accolade* is promising even more GS titles before year's end—conversions of **Fast Break** and **Grand Prix Circuit**; **Heatwave: Offshore Superboat Racing**; **Blue Angels** (a formation-flying simulation); and **The Muscle Cars** and **European Roadways**, more add-on disks for *Test Drive II*. That's a serious commitment to the Apple IIGS, and to longer-lasting games with the idea of add-on disks.

## WAR—AND PEACE

If sports make you sore, you can simulate the Revolutionary War, war in Middle Earth, star wars, the war on drugs, the ancient art of war (on sea and on land), gang war, even nuclear war—or nuclear peace, if you can manage it.

**Balance of Power** has finally appeared in its GS version, challenging players *not* to destroy the planet in a nuclear holocaust, by clever diplomacy. (That old standard of diplomacy, **Risk**, also appeared in computer clothing this year.) Like *Balance of Power* in its size, complexity, and fidelity to history is **Revolution '76**, a game that asks the question: "It's 1776 in Britain's American colonies—what will you do?"

Teachers will like *Balance of Power* and *Revolution '76*—they combine fun with learning, as *Gone with the Wind* or *Doctor Zhivago* did for movies, or, perhaps better, as **Carmen Sandiego** does for computer games. That raven-tressed sleuth, by the way, appeared this year on the Apple IIGS, in Europe, in history from 1492 to 1956, and in North Dakota, of all places.

Broderbund also finally released Apple II versions of its popular **Ancient Art of War** and **Ancient Art of War at Sea**—war simulations for people who don't like war simulations. Playing is like reading one of those Japanese military manuals recommended to American businesspeople.

Sierra On-Line and Icom Simulations both continued to release graphics adventures; the "Leisure Suit Larry" and "Déjà Vu" interfaces both have their fans.

The Sierra style showed up in **Space Quest II**; it's a more animated way to move characters. The Icom look appeared in **Uninvited**, **Shadowgate**, and **Deja Vu II**. It's more obviously based on Apple's standard Macintosh interface. ▶

## PRODUCT INFORMATION

**Ancient Art of War**, \$44.95

**Ancient Art of War at Sea**, \$44.95

**Where in Europe Is Carmen Sandiego?** \$44.95

**Where in Time Is Carmen Sandiego?** \$44.95

**Where in the USA Is Carmen Sandiego?** GS, \$49.95

**Where in the World Is Carmen Sandiego?** GS, \$44.95

Broderbund Software  
17 Paul Drive  
San Rafael, CA 94903-2101  
(415) 492-3200

**Arkanoïd II: Revenge of Doh**, \$34.95

**Bubble Bobble**, \$29.95

Taito Software  
267 West Esplanade  
North Vancouver, BC  
Canada V7M 1A5  
(604) 984-3344

**Bad Dudes**

Data East  
470 Needles Drive  
San Jose, CA 95112  
(408) 286-7074  
\$34.95

**Balance of Power GS**

Mindscape  
3444 Dundee Road  
Northbrook, IL 60062  
(312) 480-7667  
\$49.95

**Blue Angels**, \$44.95

**California Challenge**, \$19.95

**European Roadways**, \$19.95

**Fast Break**, \$44.95

**Grand Prix Circuit**, \$44.95

**Heatwave: Offshore Superboat Racing**, \$44.95

**Jack Nicklaus' Greatest 18 Holes of Major Championship Golf**, \$19.95

**Jack Nicklaus Presents the Major Championship Courses of 1989**, \$19.95

**The Muscle Cars**, \$19.95

**The Supercars**, \$19.95

**Test Drive II: The Duel**, \$44.95

Accolade  
550 South Winchester  
Suite 200  
San Jose, CA 95128  
(408) 296-8400

**Bose Roommates**

Bose Corp.  
The Mountain  
Framingham, MA 01701  
(508) 879-7330  
\$229

**Crystal Quest**

Casady & Greene  
P.O. Box 223779  
Carmel, CA 93922  
\$49.95

**Deja Vu II**

**Shadowgate**

**Uninvited**

Icom Simulations  
648 South Wheeling Road  
Wheeling, IL 60090  
(312) 520-4440  
\$49.95 each

**Flightstick**

CH Products  
1225 Stone Drive  
San Marcos, CA 92069  
(619) 744-8546  
\$74.95

**Gnarly Golf**, \$29.95

**Revolution '76**, \$49.95  
Britannica Software  
345 Fourth St.  
San Francisco, CA 94107  
(415) 546-1866

**Gravis Analog**

Advanced Gravis  
Computer Technology  
7033 Antrim Ave.  
Burnaby, BC  
Canada V5J 4M5  
(800) 937-0062  
\$59.95

**Journey**, \$49.95

**Shogun**, \$59.95

**Zork O**, \$59.95

Infocom  
125 CambridgePark Drive  
Cambridge, MA 02140  
(617) 576-3190

**KC 3**

Kraft Systems  
450 West California Ave.  
Vista, CA 92083  
(619) 724-7146  
\$29.95

**Omega**

Beeshu Inc.  
101 Wilton Ave.  
Middlesex, NJ 08846  
(201) 968-6868  
\$29.95

**Space Quest II**

Sierra On-Line  
P.O. Box 485  
Coarsegold, CA 93614  
(209) 683-6858  
\$49.95

**Rampage**

Activision  
3885 Bohannon Drive  
Menlo Park, CA 94025  
(415) 329-0500  
\$34.95

**Risk**

Melbourne House  
711 West 17th St.  
Costa Mesa, CA 92627  
(714) 631-1001  
\$39.99

**Sonic Blaster**, \$129

**TransWarp**, \$169

**TransWarp GS**, \$399

Applied Engineering  
P.O. Box 798  
Carrollton, TX 75006  
(214) 241-6060

**Wizardry V**

Sir-Tech Software  
P.D. Box 245  
Ogdensburg, NY 13669  
(315) 393-6633  
\$49.95

**Xenocide**

Micro Revelations  
P.D. Box 70430  
Reno, NV 89750  
(702) 825-1132  
\$49.95

## ONE MORE TIME

A fair share of unbelievably addicting arcade-action games appeared in our offices over the course of the year—one we'd been anticipating eagerly and two that were pleasant surprises.

**Arkanoid II: Revenge of Doh** (this month's Editors' Choice) arrived this summer and some *inCider* editors haven't done a lick of work since. The sequel is even more amazing than the original game, and that's no small praise coming from this magazine. If you buy only one game this year, this is it.

Two games for which we weren't prepared—**Crystal Quest** and **Xenocide**—have also taken their toll on office productivity.

Crystal Quest sports a series of infinitely more difficult "waves" in which you must collect all the glowing crystals you can while avoiding collisions with a steady stream of "nasties." The thing about Crystal Quest is that you figure you can always do better next time. Maybe, but by the time you figure that out it's 2 in the morning.

Xenocide is your basic "kill the aliens" game, but it features some of the finest graphics and absolutely the finest scrolling and animation of the year. You have to blast your way through four levels on each of three moons to rid the universe of the alien scourge, but you'll have to log some serious hours of practice to get that far.

Both Xenocide and Crystal Quest also feature some amazing sounds and music. You've got that beautiful RGB monitor—now you might want to think about adding a sound amplifier or stereo board and a couple of those Bose Roommate speakers.

Owners of IIs or IIs also have new arcade games to choose from: **Bubble Bobble**, **Rampage**, even **Bad Dudes**. But arcade games are really much stronger on the GS; 8-bit Apples seem better designed for fantasy role-playing games.

And speaking of those, fantasy fans have seen the greatest old games move onward, such as **Wizardry V**, as well as backward—**Zork 0**. Nineteen eighty-nine was the year that even hidebound Infocom added graphics to its text adventures: **Zork**, **Shogun**, and **Journey** all use pictures. Once you start playing, you're hooked.

## LET THE GOOD TIMES ROLL

Game developers have definitely been hard at work this year creating some impressive Apple IIGS entertainment software. Graphics screens are becoming works of art brought to life by better scrolling and smoother animation. Sound effects and music have developed at an equal pace: If you close your eyes while putting for a birdie on the fourth green of Royal Troon, you'll swear the gallery's right behind

you cheering your efforts.

Even with colossal mass-market appeal and penetration of systems like Nintendo and Sega, GS entertainment companies continue to produce some of the most technically advanced titles in the industry—on a par with and in some cases better than what you see on the Commodore Amiga. What that means to you is engrossing, brilliantly realistic entertainment experiences.

A year ago when we received GS titles they were more often than not ported over from other formats. Nowadays, we see original GS titles—that is, games developed specifically for the Apple IIGs. From the looks (and sounds) of it, every time slick entertainment titles like Xenocide and Gnarly Golf are released, the state of the entertainment art advances by quantum leaps.

## DREAM MACHINE

What's our ultimate game computer? An Apple IIGS with a ton of memory. Not only do you need it for the greatest 16-bit stuff, it also breathes new life into your IIe/IIc favorites—they simply look and sound a whole lot better (and you can play them at fast speed if you dare). You'll really need the extra RAM for some of the more complex games—the more the merrier, but I wouldn't try sneaking by with less than 768K.

Speaking of speed, if you have tons of time and boundless patience, you could get away without a **TransWarp GS**, but why bother? Pick up **Sonic Blaster** and a pair of **Bose Roommate** speakers, too, and surround yourself with superlative sound.

And sight—an RGB monitor's a must. Sure, play some GS games on a monochrome monitor—I bet you'd have fun playing basketball with a brick, too.

Don't forget your drives—two 3½-inch. Considering the number of excellent GS games that are arriving on pairs of disks, two drives will make your game-playing life much easier.

Get ahold of a CH **Flightstick** and another joystick while you're at it; the Flightstick is the definitive flight-simulation controller, but don't limit yourself. If you're arcading or doing anything else, take a look at the Advanced Gravis **Analog**, the Kraft **KC 3**, or the Beeshu **Omega**.

## ANYTHING ELSE?

As for other peripherals, get the biggest mousepad you can find. It'll help with games like **Mean 18**, **Silent Service**, and **Zany Golf** that are particularly mouse-oriented.

And don't neglect your seating arrangements. If you're so into gaming that you're designing an entire system around your entertainment preferences, you're going to log some long hours—so get comfortable, settle in, and enjoy. □

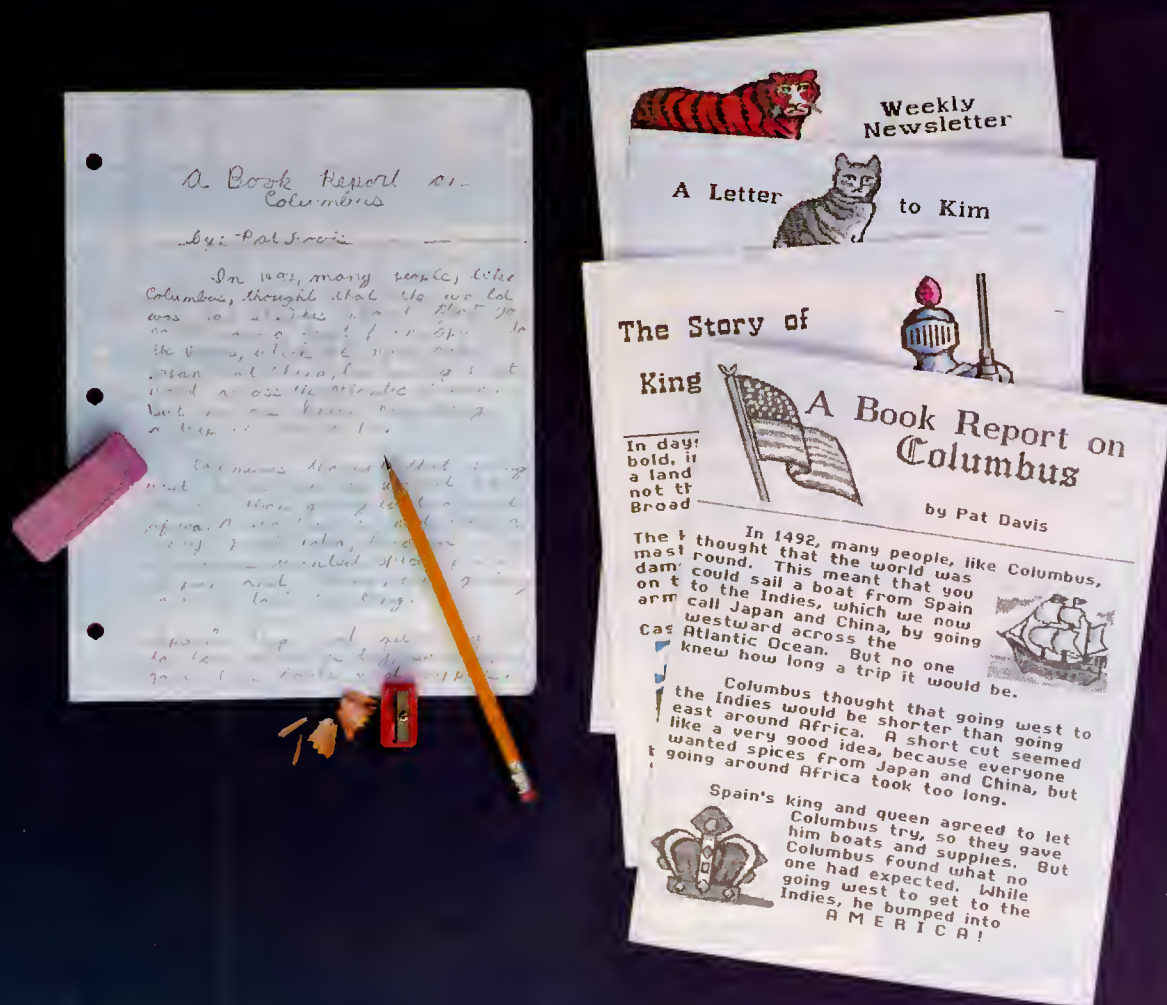
“  
T  
he innovations of  
1989 are impressive—even  
Apple itself may begin to  
consider the II a ‘serious’  
computer again.  
We certainly do.”



NEW FOR APPLE III!

**The Children's Writing & Publishing Center™**

Easy Desktop Publisher For Children 8-14



**THIS IS CLEARLY WRITING.**

**THIS IS WRITING AND THINKING MORE CLEARLY.**

Now there's a tool that encourages children to write down what they think: *The Children's Writing & Publishing Center*. This new fun and easy-to-use software program picks up where pencil and paper leave off. *The Children's Writing & Publishing Center* stimulates the natural creativity of young people and makes the process of writing both fun and rewarding. It combines powerful features in word processing, picture selection, and page design to help children, families and schools produce first-class illustrated reports, letters, stories, newsletters, and more. Now children can write more freely and creatively. . . and explore more possibilities!

***The Children's Writing & Publishing Center*: an easy, powerful way to get it in writing.**



Call for information and your free  
Parent/Teacher Software Selection Guide  
Toll free: 1-800-852-2255

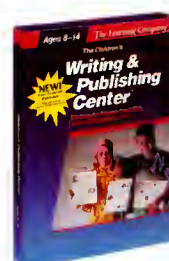


*Suggested retail prices*

Consumer edition: \$59.95

School edition: \$89.95

Lab edition: \$159.95



**The Learning Company®**

Circle 141 on Reader Service Card



# COMPUTER DIRECT

WE WON'T BE UNDERSOLD!\*

Expires 12/31/89

## CHRISTMAS SALE

### 1200 Baud External Modem

100% Hayes Compatible

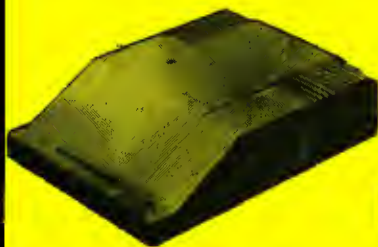
- RS232C/DB25 Connector Included
- DB9 Pin Adapter Included
- Telephone Cable Included
- 1200/300 bps Asynchronous
- Full/Half Duplex
- Stand. 9 Volt Battery or AC Adapter\*

\* Sold Separately for \$4.95



**\$69.95** List \$199.95

### 2400 Baud External Modem



**\$99.95** List \$349.00

Made in the USA!

- 100% Hayes Compatible
- 2400 bps Bell 212A
- 7 System Indicator Lights
- Tone/Pulse Dialing
- Uses RS232C Interface (Cable Req.)

Open Up New Worlds For Your Family

### COMPLETE APPLE COMPATIBLE LASER 128 COMPUTER SYSTEM



Includes - LASER 128 Personal Computer, NLQ 180-11 Printer, 12" Hi-Res Monochrome Monitor, LASER 128 Printer Interface and **FREE** Software - A \$19.95 Value  
Apple IIe & IIc Compatible

Holiday Value

**\$599.95**

List Price \$1048.95

### EDUCATE!

#### LASER128 Computer Apple IIe/IIc Compatible



Everything is Built In!

- 128K RAM • 5.25" Disk Drive •
- Serial Port • Parallel Centronics Port •
- Serial Modem Port • 40/80 Column Text •
- Hi-Res Graphics • RGB Port • Joystick/Mouse Interface

**\$389.95**

List \$499.95

Ask About  
Our **FREE**  
Gift Offer



Computer Direct, Inc.

"We Love Our Customers"

Call Now **800-BUY-WISE**  
to Apply for the Credit Card and  
to Get Your **FREE** Catalog!!!

\* Introductory Offer - Apply Now!

### BRAND NAMES

#### Magnavox RGB Color Monitor



CM-8762

- RGB, TTL, CGA & Composite Inputs
- 640 H x 240 V Resolution
- Variable Sharpness Control
- Audio Input
- Interface Cables Included
- Built-In Tilt Stand

**\$234.95**

List \$399

**800-BUY-WISE EXT. 24**

**800-289-9473 EXT. 24** Outside Service Area Call 312-382-5058

**FAX ORDERING! 312-382-7545**

We Love Our Customers

COMPUTER DIRECT

22292 N. Pepper Rd.

Barrington, IL 60010



**BEST SERVICE IN THE USA**

**PRICE IS NOT ENOUGH!**

- 90 Day Immediate Replacement
- Experts In Customer Satisfaction

- Free Technical Assistance
- Bulletin Board Service

- Fast, Low Cost Delivery
- No Credit Card Fees

- 15 Day Home Trial
- Free Catalogs

# LARGEST SELECTION EVER

## NO LIMITS!

### 5.25" DSDD Disks

Lots of 25 As Low As

**19¢ ea**

MADE IN THE U.S.A.

Qty. of 25 ..... 19¢ ea  
Qty of 25 w/sleeves. .... 21¢ ea  
Qty of 100 w/slvs & lbls. . .24¢ ea

### 5.25" High Density

Lots of 25  
Low As

**45¢ ea**

Qty of 25 ..... 45¢ ea  
Qty of 25 w/sleeves .... 47¢ ea  
Qty of 100 w/slvs & lbls . 48¢ ea

100% Certified  
Lifetime Guarantee

### 3.5" DSDD Disks

Lots of 10

**59¢ ea**

SOLD IN LOTS OF 10

## EDUCATIONAL SOFTWARE

**PROGRAMS FOR ALL AGES!!!**

**SPELL CASTLE.....\$6.95**

from Computer Easy

**Decimals/fractions/percents...\$10.95**

from Vision Software

**U.S. History.....\$12.95**

from A.E.C.

**Word Munchers.....\$28.95**

from M.E.C.C.

See our complete  
selection of  
software in our  
new Holiday  
Catalog



**No One Can Sell This Printer For Less!**

## 180 CPS Printer

Near Letter Quality



**NLQ 180-II**

Lifetime Warranty on Printhead

- 2yr. Immediate Replacement
- Dot Addressable Graphics
- Italics, Elite, Pica, Condensed
- Centronics Parallel Port
- 8K Printer Buffer
- NLQ Selectable From Front Panel
- Low Cost Adapters Available
- Pressure Sensitive Controls
- Made by Shinwa

Our Low  
Sale Price **\$149<sup>95</sup>**

LIST  
\$299

## UP to 50% OFF

Shatters the Gap Between  
Action and Reaction!

## The Ergostick

- True Ergonomic Design
- Soft and Pliable
- Form-fit to Human Hand
- Microswitch Technology

Holiday Value  
**\$29.95**

List \$39.95



## Professional Mouse

For Apple IIc & Laser 128

Holiday Value  
**\$49.95**

List \$99.95

## ZZZIP CHIP

**SPEED UP  
YOUR APPLE**  
with the ZIP CHIP

Holiday Value

**\$129.95**

Saves You Time Plus...

- Gives your Apple II speed equiv. of PC/AT® - 40% faster
- Doesn't use a card slot
- Easy to install
- Compatible with virtually all Apple and Laser Hardware and Software

**EVEN FASTER!**

**8 MHz ZIP CHIP**  
**\$169.95**

VISA  
MASTERCARD  
COD

COMPUTER DIRECT will match any current (within 30 days), valid nationally advertised delivered price on specially marked items of the exact same product with a comparable payment method, excluding any applicable sales taxes. Verification required.

Prices do not include shipping charges. Call to get your lowest delivered cost. We insure all shipments at no extra cost to you! All packages are normally shipped UPS Ground. 2nd Day or Overnight Delivery available. Minimum shipping charge per order is \$3.75. (Illinois residents add 6.5% sales tax. We ship to all points in the U.S., Canada, Puerto Rico, Alaska, Hawaii, Guam, and APO & FPO. (Color monitors shipped only in Continental U.S.A.) Not responsible for typographical errors or omissions. PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE

# Life with



So you've swapped Old Faithful for a sporty new model—the extras and options were irresistible. Now that it's out of the showroom and on the road, put it through its paces: From spelling checks and formatting features to multiple-category sorts and enhanced financial functions, AppleWorks 3.0 is one classy set of wheels.

By ERIC GREVSTAD • CONTRIBUTING EDITOR

**I**T'S FUN TO KICK THE TIRES AND TAKE a test drive, but you don't really know a new car until you've had it for a few weeks—adjusted the seat, learned how to work the radio and heater, driven the new machine long enough to compare it to your old one. Maybe you wish it had just a bit more pep on that long hill outside of town; maybe you rarely use the sunroof your dealer showed off so proudly. But for every small gripe, there are a dozen advantages to your smooth new model. You're glad you traded.

Change "sunroof" to "spelling checker," and you'll know how I feel about AppleWorks 3.0. As previewed in *inCider's* August 1989 issue (p. 44), Claris Corporation's 8-bit best-seller has received a major overhaul. Two weeks with a production copy confirm what the prerelease disks promised: The new AppleWorks is a more powerful, better-

integrated program than ever. It offers a wish list full of additional features, with only a few new commands and keystrokes to learn.

AppleWorks 3.0 is a revitalization of the most vital program in the Apple II universe. It's the first \$249 any new II buyer should spend for software. For registered AppleWorks users, the \$79 upgrade to 3.0 is an offer you can't refuse—probably an offer thousands of you will have accepted by the time this article appears.

Still, for those who haven't yet driven version 3.0, here's one user's road test: a recap of key features with some particular praises, pointers, and a few small complaints.

## SAMPLING AND SWAPPING

The *Getting Started*, *Tutorial*, and *Reference* manuals in the AppleWorks package are excellent. I wish Claris had added a "what's new" section or a guide to the changes for AppleWorks 2.0 and 2.1 veterans, though



# AppleWorks



there are scattered tips for “Old AppleWorks Hands” explaining new procedures.

One nice touch: Just as Claris recruited Beagle Bros experts to develop the 3.0 program, the firm borrowed data files from MIH Associates, the National AppleWorks Users Group, and the Teachers’ Idea & Information Exchange to replace the simplistic “Mom’s Apple Pie Company” sample files on the master disk. The new samples are impressive, ranging from gradebooks and an interactive math quiz for teachers to loan and tax templates for financial users.

The program and sample files fill most of a 3½-inch disk, which is a good thing to have: Owners of 5¼-inch drives must switch among four disks for the new version’s desktop, word processor, spreadsheet, database manager, and spelling dictionaries. The bulkier modules don’t slow AppleWorks too much if you preload them into expanded memory; booting the program and all three applications from a GS’ 3½-inch disk

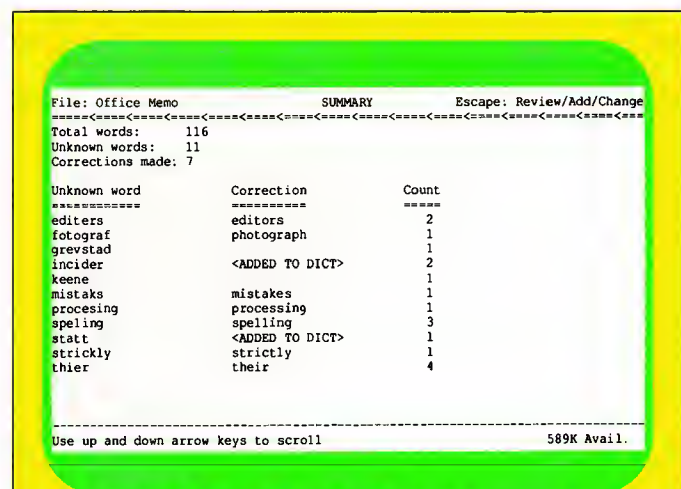
takes 33.8 seconds, versus 26.9 for AppleWorks 2.1. (Using one 5¼-inch drive, it takes about one and a quarter minutes with two swaps.)

But if you don’t have enough RAM for preloading, AppleWorks’ frequent disk access and 5¼-inch swapping grow tiresome. On a 512K GS, the desktop has shrunk from 379K to 330K. On a 128K IIc Plus, it’s shrunk from 56K to 40K, and switching from one desktop file to another can take almost 10 seconds. (Shiny new IIc Pluses will be jealous of battered old IIs, whose RamWorks or Checkmate memory cards now expand AppleWorks just as peripheral-slot or GS cards do.)

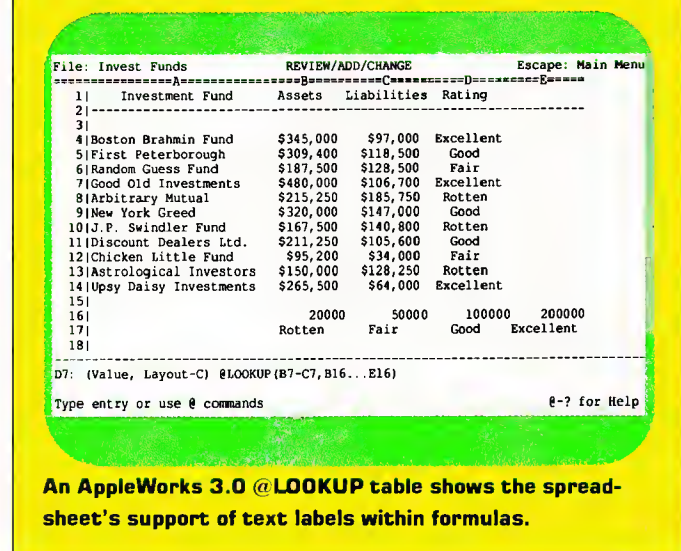
When it comes to actual data crunching, AppleWorks 3.0 is slightly slower than 2.1. Running on a standard GS, a 1000-cell spreadsheet recalculation took the new program 15.3 seconds, trailing the old one’s 14.6. A quick 200 search-and-replacements in the word processor took 8.3 seconds, versus the old edition’s 7.8 seconds.

These stopwatch differences aren’t enough to be noticeable in every- ►

day use. Subjectively, at least with 512K or more RAM, version 3.0 feels faster. If you lose a moment in raw calculation, you'll get it back when you give the Open apple-P (OA-P) command and discover that the print module is already in memory. You'll get it back when you use the new, smarter clipboard to copy spreadsheet rows into the word processor with no intervening "print to clipboard" step, or when you use the new



AppleWorks 3.0's spelling checker includes an optional summary of flagged words and corresponding changes.



An AppleWorks 3.0 @LOOKUP table shows the spreadsheet's support of text labels within formulas.

desktop display to enter a subdirectory or import an ASCII file without typing pathnames.

## SPELLING AND EDITING

One 3.0 feature that spins the disk no matter how much RAM you have is the word processor's spelling checker. The checker allows *ain't* (a fine thing for a program meant for America's classrooms) and occasionally falters when suggesting corrections—offering a fix for *mistek* but not for *mistakes*, flagging *alot* and *alright* but not suggesting a *lot* and *all right*.

But the speller works well enough, if you don't mind the way it scans its on-disk dictionary when you first summon it, or its much longer disk access to hunt for suggestions. Catching doubled words and offering a choice of error correction "in context" (one by one) or "from a list" (all at once) are good points; its optional summary of results is a nice teaching aid, which adult writers will likely leave turned off.

Even so, I found myself less excited by the speller than by the word processor's new formatting options. They can make your on-screen documents rather messy (you'll be lost without the OA-Z zoom view of formatting codes), but they'll make printed documents very neat.

Where the tab key formerly just inserted spaces to indent paragraphs or left-aligned columns, the new "real tabs" provide flawless control of left-, right-, center-, or decimally aligned columns. One hint: Before using the OA-T command to create a new tab ruler (as for a table), use it to make a duplicate of the default ruler, which you can easily copy and apply to text below the table instead of having to retype the old tab stops.

You may also want to put tabs closer together or clear them when pasting spreadsheet rows; a spreadsheet block that fit into the 2.1 word processor with only a few spaces between columns may be too wide in 3.0 with tabs between columns.

The new paragraph-formatting shortcuts Control-N, -F, -C, and -R for normal, full, center, and right justification are terrific timesavers compared to typing OA-O format-option codes. You'll still use the latter sometimes, because there are new codes to print the time and date as well as page numbers. These combine with the control-key alignments to create splendidly fancy, slightly complex multiline headers and footers. The six user-defined codes for special printer functions let me use AppleWorks with the near-letter-quality and italic modes of my Epson.

## ARRANGING AND CALCULATING

The AppleWorks 3.0 database has only a couple of truly new functions: OA-A (Arrange) can sort on two or three categories at once, not just one, and OA-F (Find) can focus on a particular category as well as search for a text string anywhere in the database. They're powerful features, once you learn a few extra command keystrokes. Looking for Acme Co., I instinctively typed OA-F and *Acme*—which told 3.0 to look Anywhere (as opposed to "In a specific category") for *cme*.

Other database enhancements involve more convenient ways to view your data: trivial ones, such as inverse-video display for category names, and welcome ones, such as horizontal scrolling in multiple-record layout if a database has too many categories to fit on screen. Report formatting, still a bit painstaking, takes less duplication of effort now that the OA-P and OA-L commands speak to each other—you can base a report format on your on-screen layout, or vice versa.

Instead of a maximum of eight report formats, you can now have up to 20. (They're all still obliterated if you add or delete categories, so it's still wise to use a few empty, renameable categories if you plan to add data later or use one database as a template for another.) It's good news that you can now print multiple labels across. It's even better news that you can do mail merge with quick-and-dirty copying of records to the clipboard; there's no need to choose a report format and print to the clipboard in formal fashion.

The spelling checker may be the first gadget mentioned in Claris' ads, but the most powerful change in AppleWorks 3.0 is the spreadsheet. Merely being able to move or copy blocks, as well as whole rows or columns, is almost worth the upgrade price, and the 20 new trigonometric and financial functions are invaluable for math classes and business offices, respectively. (Those rusty on certain concepts may wish for a few more hand-holding examples in the manual, though the sample files helped me get the hang of radians versus degrees and monthly versus annual interest rates.)

You don't need to be a math or banking whiz to appreciate AppleWorks' six new logical functions and its ability to use labels—textual values, if you will—in formulas. Basically, this feature lets you



use the mathematical power of the worksheet for more database-like, English-language applications.

Teachers can now write lookup tables that yield students' letter grades. If an executive needs to see at a glance whether a branch office is making a profit, he or she needn't examine a screen already full of numbers to see whether D5 minus E5 is positive or negative: *@IF(D5>E5,"Profit", "Loss")* gives the answer in a word.

### SIMPLY SUPERB

Extra convenience and better integration are the hallmarks of AppleWorks 3.0. So is easier navigation, whether you're moving between applications via the clipboard, moving sideways through a database, or using the new cursor commands to move to the beginning or end of a line or delete forward instead of backspacing.

As for moving among data disks and directories, AppleWorks' new menus and file-loading and -saving options are adorable. (I've been saying for years that Alan Bird's ProDOS "Bird's Better Bye" should be credited in the Hall of Fame; now it's credited on the title page of the AppleWorks manual.)

Of course, no program is perfect. I'm used to typing 3 to abandon changes when removing a file from the desktop; the key for that function now is sometimes 3 and sometimes 4. While you can import a text file without typing pathnames and slashes, you must still do so when you export or save a file in ASCII format—something some offices may do a lot, because AppleWorks 2.0/2.1 and AppleWorks GS can't read many 3.0 files. (The hangups are the new spreadsheet functions, tabs, and print codes, and databases with more than eight report formats. On the positive side, the new tabs-to-spaces and no-extra-carriage-return export conversions work fine.)

The new version's extra appetite for memory and disk access may bother users who haven't upgraded to a GS. Frequent users of the spelling checker will even wish they had a hard disk or a RAM disk.

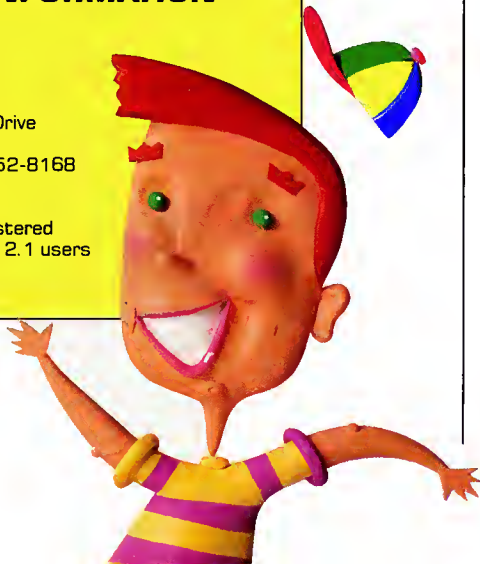
But will you ever wish you hadn't upgraded to AppleWorks 3.0? Never. The new edition does almost everything AppleWorks fans could have hoped for; it *will* do everything fans could hope for, if they indulge in Beagle Bros' tempting TimeOut add-ons. AppleWorks 3.0 more than lives up to the living legend. □

ERIC GREVSTAD IS *INCIDER'S* FORMER REVIEW EDITOR AND IS NOW A FREELANCE JOURNALIST. WRITE TO HIM C/O *INCIDER*, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

### PRODUCT INFORMATION

#### AppleWorks 3.0

Claris Corporation  
5201 Patrick Henry Drive  
Box 58168  
Santa Clara, CA 95052-8168  
(408) 987-7000  
\$249  
\$79 upgrade for registered  
AppleWorks 1.3, 2.0, 2.1 users



ALLTECH ELECTRONICS CO., INC.

1300 E. EDINGER AVE., SUITE D, SANTA ANA, CA 92705  
2018 W. LOMITA BLVD., SUITE 1, LOMITA, CA 90717

TEL: (714) 543-5011

FAX: (714) 543-0553

FLOPPY AND HARD DRIVES FOR APPLE		EXPANSION BOARDS FOR APPLE	
II, II+, IIe EXTERNAL FULL HEIGHT FLOPPY	\$65.00	IIGS 1MB RAM BD W/ 1 MEG	\$139.00
IIC, LASER 128 EXTERNAL FLOPPY DRIVE	75.00	IIe 1MB RAM BOARD 0K	69.00
IIC, INTERNAL FLOPPY DRIVE	95.00	IIC 1MB RAM BOARD 0K	79.00
ASAB00 3.5" OASIS CHANGEABLE FD, IIGS, MAC	185.00	II+ 1MB RAM BOARD 0K	89.00
20MB SCSI RO SYSTEM FOR IIE, IIGS	595.00	80 COLUMN CARD FOR II, II+	69.00
60MB SCSI HD SYSTEM FOR IIE, IIGS	795.00	64/80 COLUMN CARD FOR IIE	35.00
20MB HARD DRIVE FOR MAC+ & MAC II	495.00	CP/M 280 CARO	29.00
60MB HARD DRIVE FOR MAC+ & MAC II	725.00	16K RAM EXPANDER CARD, II+	39.00
MONITORS, KEYBOARDS, MISC.		128K CARD APPLE II+	69.00
AMBI 9" COMP AMB MONITOR, IIE, +, C, GS	\$69.00	SUPER SERIAL CARD	69.00
APPLE IIC COMP. GRN MONITOR W/STAND	89.00	GRAPHIC PRINTER INTERFACE	35.00
APPLE II+, IIE, III OR MAC KEYBOARDS	65.00	UNIDISK 5.25" CONTROLLER	45.00
MACINTOSH NUMERIC KEY PAD	29.00	UNIDISK 3.5" CONTROLLER	75.00
APPLE IIC CARRYING CASE	29.00	APPLE MOTHER BOARDS	
CABLES		IIC & IIE MOTHER BOARD	\$200.00
LASER 128 PARALLEL PRINTER	\$15.00	II+ MOTHER BOARD	100.00
APPLE TALK CABLE EXTENDER - 10 FT	12.50	MAC 128 MOTHER BOARD	100.00
VARIOUS CABLES FOR APPLE AVAILABLE FROM	9.00	MAC 512 MOTHER BOARD	150.00
MANUALS FOR APPLE		MEMORY CHIPS FOR APPLE	
APPLE WORKS WITH DISKS (VER. 1.2)	\$29.99	64KB - 15	EACH \$1.00
APPLEWRITER II USERS W/DISKS (VER.2.0)	29.00	64KB - 20	EACH .85
PRODOS USERS WITH DISKETTE	15.00	256KB RAM CHIP	EACH 3.50
		SIM 256 X 8	EACH 39.00
		SIM 1 MEG X 8	EACH 139.00

#### APPLE II, II+, IIE POWER SUPPLY

REFURBISHED	\$35.00	WITH EXCHANGE	\$29.00
-------------	---------	---------------	---------

ABOVE PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE. REFUNDS SUBJECT TO 20% RESTOCKING FEE. OUR LIABILITY IS LIMITED TO PURCHASE PRICE. ABOVE PRICES ARE CASH AND CARRY. CREDIT CARDS - ADD 3%. SHIPPING, COD & INS. CHARGES EXTRA.

Circle 103 on Reader Service Card.

## Build Your IIGS/IIe Hard Disk Apple-Hive •• a disk enclosure

- room for two 5.25" or 3.5" drives
- horizontal or vertical placement
- optional front for cartridge drive
- quiet cooling fan
- platinum color
- FCC certified

30watts -- \$119    65watts -- \$169

### Hard Disk Subsystem(pre-formatted)

32MB	\$549
48MB	\$609
65MB	\$699
85MB	\$759



### Tape Subsystem w/ format software

155MB	\$769	60MB	\$669
-------	-------	------	-------

Tulin Corporation  
2393 Qume Drive, San Jose, CA 95131

Tel:(408)432-9025 Fax:(408)943-0782

Circle 231 on Reader Service Card.

# FOOD FOR THOUGHT 2

Making a list and checking it twice are easy with AppleWorks' database. Create a customized shopping list that'll ensure you never run out of holiday treats.

By RUTH K. WITKIN

WITH ALL THE RUNNING AROUND YOU do during the hectic holiday season, you don't want to spend a lot of time preparing your grocery lists. But you also don't want to return home from the supermarket only to find you've forgotten the sugar for your Christmas cookies and the flour for your pie crust. The shopping-list database you created last month ("Food for Thought 1," October 1989, p. 66) prevents such headaches and makes shopping day a breeze!

To reprise, you've already created categories; set a standard value; and entered header, subheader, and item records. To arrange new records in proper order, you've sorted on the item and section categories. Let's begin again by printing shopping lists you can take to the supermarket. Start up AppleWorks and load the database named *SHOP LIST*. You should now see the records in the multiple-record layout of the Review/Add/Change screen.

## LIST 1: ALL RECORDS

The list in **Figure 1** contains all records in the database, exactly as you entered them last month. To create this report format, press OA-P to bring up the Report Menu, and hit Return to confirm *Create a new "tables" format*. Type the report name **COMPLETE LIST**, and hit Return.

You're now in the Report Format screen with its array of commands, cursor movements, and category names. Below the category names you should see the first three records in the database: *ITEM* (header), *\* B E V E R* (subheader), and *APPLE JUICE* (shopping item).

In the same way that you customized the multiple-record screen last month, customize this report format: With the cursor on the BUY category, press OA-Left Arrow (9 times) to reduce the column width. Now press the following key combinations to adjust the other column widths, using the right-arrow key to move to the next category:

ITEM	OA-Right Arrow (13 times)
AMOUNT	OA-Left Arrow (6 times)
BRAND/TYPE	OA-Right Arrow (17 times)
SECTION	OA-Left Arrow (8 times)
AISLE	OA-Left Arrow (9 times)
STORE	OA-Left Arrow (9 times)
PRICE	OA-Left Arrow (5 times)
UNIT	OA-Left Arrow (5 times)

Move the cursor to the SPARE1 category and press OA-D twice to delete both spares. The cursor is now on the print-width indicator, which shows *Ln96*, perfect to print at 12 characters to the inch.

Press OA-O to bring up the Printer Options screen. Now type **CI**, press Return, type **12**, and hit Return again. To permit continuous printing of a long list with no white space between pages, reduce the bottom margin

from two to zero inches: Type **BM**, press Return, type **0**, and hit Return again. The report header merely takes up room at the top of each page, so turn it off: Type **PH** and hit Return. Press Escape to return to the Report Format screen.

Now turn on your printer. Press OA-P to bring up the Print the Report screen. Select your printer and confirm one copy. The printer rolls out a list of every item in this database, then AppleWorks returns you to the report format. Press Escape to return to the Report Menu.

## LIST 2: ITEMS TO BUY

The second list, shown in **Figure 2**, contains items to buy on your next shopping trip. This list differs from the first one in two significant ways: It contains selected records only, and the BUY category doesn't appear, even though it's the category used for record selection.

No need to start a report format from scratch, so type **4** and hit Return to select *Duplicate an existing format*. Confirm **COMPLETE LIST** by hitting Return, then press OA-Y to erase the current name. Type **ITEMS TO BUY**, and hit Return. AppleWorks brings up a copy of the first report with the cursor on the BUY category.

You want to print header records to identify contents of columns, subheader records to identify groups, and all items with a 1 ("check off") in the BUY category. To start the selection process, press OA-R to bring up the Select Records screen. AppleWorks now displays a list of category names with the highlight on BUY, the one on which it makes most sense to make selections, so hit Return.

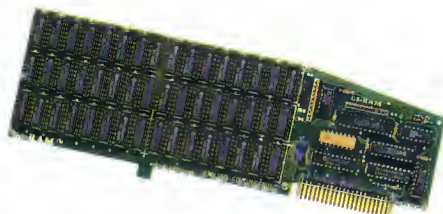
You're now offered 12 selection criteria, with the highlight on *equals*. This is also what you want, so hit Return again. To tell AppleWorks to select all records with BUY in the BUY category (as in the header record), ►



# Three ways to grow a IIGS.

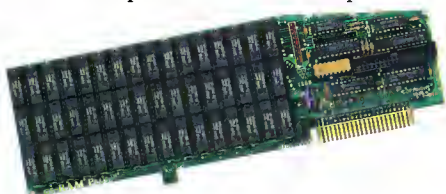
Applied Engineering makes three different memory cards for the IIGS because every IIGS owner is different. Each card was designed to suit specific needs:

**1.** **GS-RAM™** Start with as little as 256K of memory and grow in affordable 256K increments to 1.5 MEG (an amount that once sounded large, but is now considered a moderate amount of memory expansion.) Incorporates 256K x 1 chips.



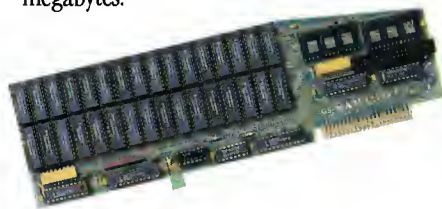
<b>GS-RAM w/256K</b>	<b>\$169</b>
<b>1 MEG</b>	<b>\$319</b>
<b>1.5 MEG</b>	<b>\$419</b>

**2.** **GS-RAM Plus™** Expands from 1 to 6 MEG in 1 MEG increments. Originally designed for power-users requiring a great deal of internal memory, this card has recently found favor with many moderate users. MEG-sized jumps in memory have now become practical for many users because of the enormous memory requirements of today's software titles. Incorporates 1 MEG x 1 chips.



<b>GS-RAM Plus w/1 MEG</b>	<b>\$379</b>
<b>2 MEG</b>	<b>\$579</b>
<b>3-6 MEG</b>	<b>CALL</b>

**3.** **GS-RAM Ultra™** AE's newest memory card incorporates a new chip - the 256K x 4, which has four times the density of 256K x 1 chips. GS-RAM Ultra offers incremental expansion like the GS-RAM and ultimate size like the GS-RAM Plus. It's expandable from 256K to 4 MEG in 256K increments, so you can start small and still grow to a massive 4 megabytes.



<b>GS-RAM Ultra 256K</b>	<b>\$229</b>
<b>512K</b>	<b>\$279</b>
<b>768K-4 MEG</b>	<b>CALL</b>

We've also added ROM sockets to the GS-RAM Ultra. ROM sockets allow hardware-based applications to be loaded permanently into EPROMs...an increasingly important feature when applications become available from Applied Engineering and others.

## Consider your needs.

Need a moderate amount of memory? **GS-RAM** lets you start small and takes you up to 1.5 MEG. Need lots of memory right away? **GS-RAM Plus** is your best bet. Want to start small and leave open the possibility of a huge internal memory? **GS-RAM Ultra** is your card. And our **GS Expander™** piggyback card adds up to 2 MEG to any of the three cards. Call AE for prices.

## Talk to us.

Your decision should be based on anticipated maximum memory need and growth path. Initially, it's less expensive to add 256K than 1 MEG, but buying a MEG at a time could save you money over the long haul. Call us. We'll be happy to discuss your particular applications.

## DMA compatibility.

All three of our GS memory cards are fully DMA compatible (and they're the ONLY large-format cards that are), so they not only run all GS software, they also support *current and future* DMA peripherals.

Installation couldn't be easier, the cards just plug in. And all three cards feature Applied Engineering's meticulous craftsmanship, along with our 5-year warranty, our 15-day money-back guarantee\* and our American-made pride.

## Still more:

Each of our GS memory cards comes with many other exclusive features, *disk caching* that tremendously speeds up many programs, including AppleWorks, by virtually eliminating disk access. Our *diagnostic utility* feature graphically detects the presence of bad or improperly installed chips and tests for CAS before RAS chips. And our *AppleWorks enhancement* package dramatically increases AppleWorks' word processor lines (from 7,250 to 22,500), database records (from 6,350 to 22,500), clipboard capacity (from 255 lines to 2,042) and more.

## Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
The Apple enhancement experts.  
A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.

\*When purchased from Applied Engineering or thru a participating dealer.

type **BUY** and hit Return.

AppleWorks now brings up connectors *and*, *or*, and *through*, which let you narrow or expand the selection. You want to select more records, so type **2** to select *or* and hit Return. **BUY** is still your selection category, so hit Return, then hit it again to confirm *equals*. This time, type **===** (as in subheader records) and hit Return.

AppleWorks now invites you to include even more records in the selection. Hit Return three times to confirm *or*, **BUY**, and *equals*. Now type **1** (as in selected items) and hit Return. Three selections are the limit, so AppleWorks returns you to the Report Format screen. The top left of the screen should now look like **Figure 3**.

All selections are on the **BUY** category, so you really don't need to see it in this list. With the cursor on the **BUY** category, press **OA-D** to delete.

Now print this report. Be sure the printer is on. Press **OA-P** and hit Return twice. Your report should look like the one in **Figure 2**. As you can see, the selection still works, even if you delete the selection category. Press **Escape** to return to the Report Menu.

**Figure 1.** Shopping-list records (tables format).

BUY	ITEM	AMOUNT	BRAND/TYPE	SEC	AIS	STO	PRICE	UNIT
===	* B E V E R A G E S	=====	=====	=====	=====	=====	=====	=====
1	APPLE JUICE	1	MOTT'S	BV	5	WB	1.99	2 QTS
1	GINGER ALE	2	WHITE ROCK	BV	11	WB	1.29	2 LTR
	ICED TEA MIX		TETLEY	BV	5	WB	3.79	53 OZ
===	* C A N N E D   G O O D S	=====	=====	=====	=====	=====	=====	=====
1	CRANBERRY SAUCE	3	OCEAN SPRAY	CA	2	WB	.59	16 OZ
	PEAS AND CARROTS		NOLIKO (GLASS JAR)	CA	7	WB	.73	12 OZ
===	* C E R E A L S	=====	=====	=====	=====	=====	=====	=====
1	COMMON SENSE OAT BRAN	1	KELLOGG	CE	7	WB	2.35	12 OZ
	CREAM OF WHEAT		NABISCO	CE	7	WB	2.19	12 OZ
===	* C L E A N I N G	=====	=====	=====	=====	=====	=====	=====
1	CLEANSER	2	AJAX	CL	9	WB	.75	21 OZ
	FLOOR WAX		MOP & GLOW	CL	9	WB	2.89	32 OZ
	FURNITURE POLISH		LEMON PLEDGE	CL	9	WB	2.49	14 OZ
1	LAUNRY DETERGENT	1	ALL	CL	9	WB	8.99	20 LBS

**Figure 2.** Long version of shopping list.

ITEM	AMOUNT	BRAND/TYPE	SEC	AIS	STO	PRICE	UNIT
* B E V E R A G E S	=====	=====	=====	=====	=====	=====	=====
APPLE JUICE	1	MOTT'S	BV	5	WB	1.99	2 QTS
GINGER ALE	2	WHITE ROCK	BV	11	WB	1.29	2 LTR
* C A N N E D   G O O D S	=====	=====	=====	=====	=====	=====	=====
CRANBERRY SAUCE	3	OCEAN SPRAY	CA	2	WB	.59	16 OZ
* C E R E A L S	=====	=====	=====	=====	=====	=====	=====
COMMON SENSE OAT BRAN	1	KELLOGG	CE	7	WB	2.35	12 OZ
* C L E A N I N G	=====	=====	=====	=====	=====	=====	=====
CLEANSER	2	AJAX	CL	9	WB	.75	21 OZ
LAUNRY DETERGENT	1	ALL	CL	9	WB	8.99	20 LBS



## AppleWorks then.

While old favorites are hard to part with, here's one exception.

Introducing the new AppleWorks® 3.0 program. It has the same look and feel of original AppleWorks plus dozens of new features. Like a super-

fast spell checker. Advanced spreadsheet functions. More mailing labels across the page. Easier access to files. Built-in support for more printers and memory cards. An expanded clipboard, and much more.



Figure 3. Top of Select Records screen.

```
File: SHOP LIST
Report: ITEMS TO BUY
Selection: BUY equals BUY
          or      BUY equals ==
          or      BUY equals 1
```

Figure 4. Slimmed-down shopping list.

AISLE	ITEM	BRAND/TYPE	AMOUNT	UNIT
2	CRANBERRY SAUCE	OCEAN SPRAY	3	16 OZ
5	APPLE JUICE	MOTT'S	1	2 QTS
7	COMMON SENSE OAT BRAN	KELLOGG	1	12 OZ
9	CLEANSER	AJAX	2	21 OZ
9	LAUNDRY DETERGENT	ALL	1	20 LBS
11	GINGER ALE	WHITE ROCK	2	2 LTR

#### LIST 3: SLIM LIST OF ITEMS TO BUY

The shopping list in Figure 4 is a no-frills version of the one in Figure 2. Only newly created category-names and items-to-buy records appear in this one. Also notice that

categories are switched around.

Here's how to create its report format, as shown in Figure 5: Again, type 4, and hit Return to duplicate an existing format. Now type 2 to select *ITEMS TO BUY*, and hit Return.

Move the cursor to the space after BUY and type —**SLIM** (so that the report name becomes *ITEMS TO BUY—SLIM*), and hit Return. AppleWorks brings up a copy of the second report with the cursor in the ITEM category.

Now change the selection to print only those records containing 1 in the BUY category: Press OA-R and hit Return to confirm *No*. Hit Return twice to confirm *BUY* and *equals*. Type 1 (the comparison information), hit Return, and press Escape to exit the selection screen. AppleWorks will now keep header, subheader, and unnecessary item records from printing. Now delete the following categories, using the right-arrow key to move to each one, then pressing OA-D: *SECT* (section), *STO* (store), and *PRICE*. These categories join BUY and the SPARES in that happy hunting ground of temporary deletions. The print-width indicator now shows Ln75.

Next, switch the remaining categories around a bit: With the cursor in the AIS (aisle) category, press OA-< three times to jump to the left. Increase the AIS column width by pressing OA-Right Arrow three times. Now, move the cursor to the AMOUNT category ►



## AppleWorks now.

Yet AppleWorks 3.0 still runs on a 128K. Just as fast.

Call for your upgrade today. Don't

waste a minute longer. Because if there's one thing better than an old favorite, it's a new favorite.

**AppleWorks Upgrades: 1-800-628-2100**

CLARIS

# Animated Interactive Storybooks

You and your child choose what happens next.

Reading aloud with young children is an essential step in their early education. The Lapware™ programs in Reading Magic Library™ bring a new dimension to this valued family tradition.



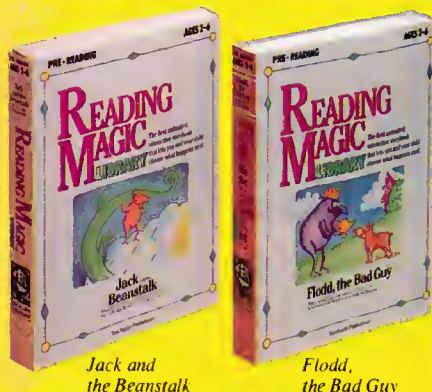
Hours of animated graphics

These delightfully told and beautifully animated stories allow you and your child to step into the hero's shoes, deciding what will happen next. Learning to read has never been so exciting!



Choose what happens next

Reading Magic Library. The greatest way to introduce your child to computers.



Jack and the Beanstalk

Flodd, the Bad Guy

Pre-Reading Software for ages 2-6. Available for Apple II GS, Apple II series, and IBM/Tandy.

Teachers: Call us for our free catalog of award winning K-12 school software.

**Tom Snyder Productions**

90 Sherman St., Cambridge, MA 02140

Call 1-800-342-0236.

Circle 50 on Reader Service Card.

**APPLEWORKS**  
IN ACTION

Figure 5. Figure 3 report-format screen.

File: SHOP LIST		REPORT FORMAT		Escape: Report Menu	
Report: ITEMS TO BUY-SLIM					
Selection: BUY equals 1					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<hr/>					
<					

and press OA-> once to jump to the right.

A shopping list without either a header record or an AppleWorks header can be confusing, so create category names: Press OA-N (which jumps the cursor to the report name at the bottom of the screen) and hit Return to jump the cursor to the title line above the category names. The heading you're about to create prints at the top of each page, which is handy in a multipage report.

Now type AISLE and press the spacebar twice to place it above the I in ITEM. Type ITEM and hold down the spacebar until it's above the B in BRAND/TYPE. Type BRAND/TYPE and hold down the spacebar until the cursor is above the A in AMOUNT. Type AMOUNT, space over to UNIT, type UNIT, and hit Return. The combined total of text and spaces in this type of header can't exceed 78 characters.

Aisle numbers in ascending order can ease shopping chores, so hold down the left-arrow key to reach column A (AISLE), press OA-A, type 3 to select From 0 to 9, and press Return.

Now print this report. Be sure the printer is on. Press OA-P and hit Return twice. Your report should look like the one in Figure 3. This completes the reports in this session, so press OA-S to store the formats on disk.

To restore the records to proper order, return to the multiple-record layout screen and sort first (From A to Z) on the ITEM category, then on the SECTION category. Save the database again. Then, before you print the slim list, sort on the aisle category, but don't save

the database.

To make this database truly yours, do as I did—wander through the aisles of your favorite store jotting down items you buy regularly, where you can find them, and how much they cost.

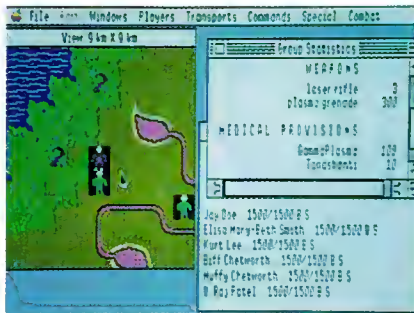
Then use the techniques you learned to insert new subheader and item records. The best approach is to copy (OA-C) an existing record, keep entries that apply, and overwrite those that don't. Do the double-sort to put new records in proper order.

When shopping day arrives, check off items you need by entering the number 1 in the BUY column, as in Figure 1, and how many to buy in the AMOUNT column. After shopping, erase the contents of the BUY and AMOUNT categories. With items you buy each time you shop, it's a good idea to leave the 1 and the amount.

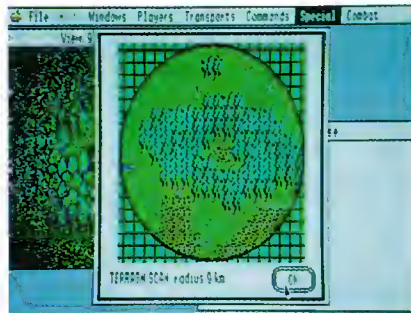
Next month ushers in a timely twosome of spreadsheets: one to compare what you spend with national averages, and the other to show how much it would cost in 1990 dollars to buy something you already have. □

WRITE TO RUTH K. WITKIN AT 5 PATRICIA STREET, PLAINVIEW, NY 11803. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A REPLY.

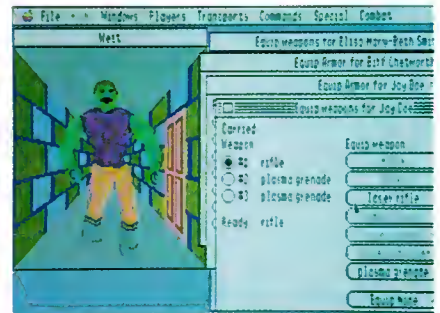




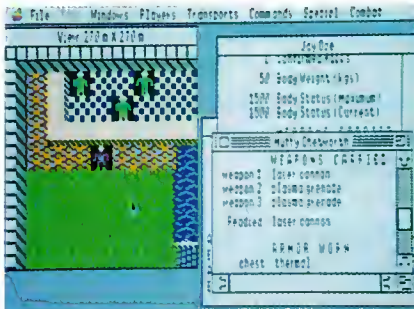
Be alert while exploring the Cryllan surface, for strange creatures abound.



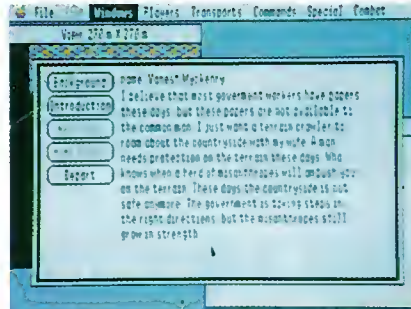
Operating various scanners, your science officer can offer invaluable guidance at night.



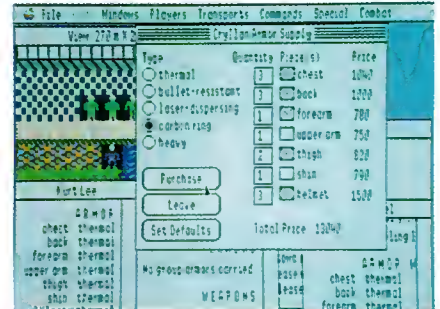
Explore buildings and caverns, but be prepared for hostile encounters in dark corridors!



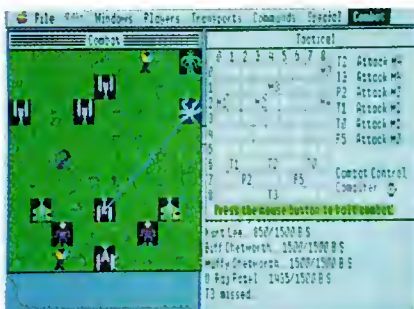
Towns offer armor, weapons, food, medical provisions, transports, repairs, and healing.



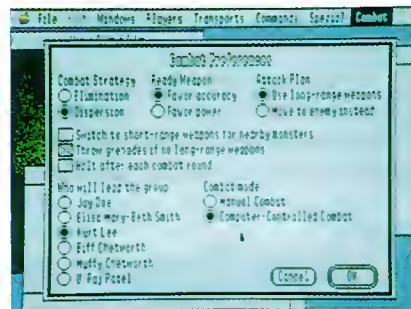
Chat with the local townspeople, but always remember the nature of your mission.



Modelers dialogs allow you to browse your supplies while shopping for new items.



Both player and monster groups can bring transports into combat.



Control combat manually, or allow the computer to follow your selected strategy.



Windows and dialogs are now 300-800% faster with System 5.0! Wow!

# 2088: The Cryllan Mission

## Written Only for the Apple IIGs

November 20, 2088: Captain, you have been summoned here regarding the loss of contact with the U.S.S. Houston. The Houston had discovered a small planet, Crylla, in the Gamma-Chi sector. Transmission is several months overdue, and now we are concerned. Assemble your team of six within 72 hours for immediate dispatch to Crylla. Determine the crew's whereabouts, but do not disclose your mission to any natives. Good luck.

Victory Software proudly introduces **2088: The Cryllan Mission**, a role-playing game which incorporates fast 640x200 graphics and the complete desktop interface. Now with System 5.0 the desktop is up to 800% faster, providing a convenient, familiar, and quick interface.

### Crylla's Colorful Landscape

**2088: The Cryllan Mission** displays the most

realistic graphics of any Apple II game. For example, dense forests block your vision, but climbing hills allows you to peer over the tops of these same forests. Also, movement speed varies according to transport types and terrain.

### A Six-Person Team of Specialists

Team members specialize in medicine, science, or combat. All members can fight, but their specialties can be quite handy on Crylla.

### Combat

**2088: The Cryllan Mission** introduces several new dimensions to combat. First of all, both sides can bring several armored transports into battle. Players can enter and exit these transports freely during battle and repel approaching foes with the transports' lasers. Secondly, the command interface is simple, intuitive, and quick. Each round of combat is first planned and then executed. Move, attack,

and enter-transport commands are quickly entered by clicking on the player's shape and dragging to a target. Finally, a computer-controlled mode can follow a variety of attack strategies. This automated mode can be entered and exited at will during a battle.

### How to Order Your Copy

**2088: The Cryllan Mission** is available from Victory Software for only \$69.95. Please include an additional \$4.00 for shipping and handling. Please note that Texas residents must add 7% for state sales tax.

### Victory Software

P. O. Box 821381  
Houston, Texas 77282-1381  
(800) 232-3828  
(713) 493-3232



# BOXING DAY

Break out the eggnog—and Publish It!—this holiday season, and create party favors that add fun to your celebrations.

By CYNTHIA E. FIELD, Ph.D.

SLEIGH BELLS RINGING AND CAROLERS singing—they're the traditional sights and sounds of holiday time. But even if you and your family have gone high-tech, you don't have to leave your Apple II out in the cold this Christmas season. How about using **Publish It!** to create custom holiday trinket boxes that are perfect as party favors?

Designing a three-dimensional object from a seemingly flat page-layout program is even easier than you think. And anything you can fit into a two-inch cube (candy, gift certificates—or even five gold rings) will fit inside this package.

## BACK TO THE SOURCE

The original idea for this holiday project came—no, not from the North Pole—but from California.

A consultant in computer graphic arts forwarded her “low-tech” printed box design in hopes we could convert it to a Publish It! template. Like any drawing, this one was made up of discrete objects.

Though Publish It! lacks at least one tool (polygon) required to make an *exact* replica of the artist's box, you can easily construct a “reasonable facsimile” by using the tools that *are* available—even in the original Publish It! version. Here's how.

Start up Publish It! and work in Size to Fit

mode (Open apple-4 or Special menu). The box template is composed of 13 objects, which I've labeled in **Figure 1**. To create these objects you need only two shape tools from the Publish It! palette: the rectangle and the round rectangle.

Use the rectangle tool to create the ten objects (object C and objects E through M) that are perfect squares and the two objects (B and D) that are rectangles. Use the round-rectangle tool to create the one object (A) that has rounded corners.

To begin, select the rectangle tool. Choose *Set Line Weight* from the Objects menu, and click on the radio button corresponding to the thinnest line. Beginning about 1½ inches from the left edge of the page and 4 inches from the top, “rubber-band” (press and drag) object E. Make it approximately 2 inches wide and 2 inches high.

Pull down the Objects menu and select *Show Specifications* (or press Open apple-M). Edit the specifications for object E, so that they conform precisely to that object's values listed in the accompanying **Table**.

Back on the “drawing board,” select the pointer tool from the palette and click on object E. This action puts selection handles on object E's four corners. Pull down the Objects menu and select *Copy* (or press Open apple-C). Pull down the menu again and select *Paste* (or press Open apple-V). An exact replica of object E appears on screen.

Drag this new square, now considered object F, into place on the right side of object E. Check object F's specifications to be sure this square conforms in placement and size to the values indicated in the **Table**.

Make another replica of the square either by using the Objects pull-down or by pressing Open apple-V. Check the specifications of what is now object G.

Continue until you've created objects H, I, J, K, L, M, and C. Easy as this process is, it's tedious, so save your progress frequently.

## WHAT'S THE FLAP?

Objects B and D are the inside flaps of the box. They're somewhat smaller than the square objects you've just created. Rubber-band them into place with the rectangle tool, check their specifications in the **Table**, and edit them (Open apple-M) if necessary.

Object A is a round rectangle, so you'll need to swap tools at the palette. With the round-rectangle tool rubber-band object A. Glance at the **Table** to check object A's specifications and edit them, if necessary.

Save this final template. Print a sample of your box, which should look like **Figure 2**.

## CUSTOM DESIGNS

Theoretically you can add graphics or text areas to any object you've just created, or to all of them. Two factors, however, may convince you otherwise. First, some of the objects won't show when you've assembled the box. Who wants to waste time adding artwork no one will see?

Second, Publish It! can't flip graphics and text. (Publish It! 3, which should be available in January, was rumored at press time to offer this feature.) You can incorporate illustrations or messages into objects C, E, F, G, I, and L, but bear in mind that anything you print on C, I, and L may appear “upside down” when the you assemble the box. ►





## Not all modems are created equal.

The right modem can change the way you use your computer. Modems allow you to step outside the limitations of your own hardware and software. But the degree to which you are benefitted by your modem is directly proportional to the quality of modem you select.

Not all modems are created equal. A new generation of 2400 baud modems, both internal and external, have appeared on the scene as of late. While Hayes AT compatibility and equivalent raw transmission speed can be expected, there are differences. Some are subtle. Others, quite significant.

### Expensive features and low cost

Applied Engineering's entry into this market, the DataLink 2400™, was designed to combine the features of expensive modems with the price of low-cost modems.

Frankly, some of the DataLink 2400's advantages are subtle. Like the ability of our firmware to intuitively accept commands in both upper and lower case, thus avoiding the nuisance of being ignored for forgetting to press the "shift" key.

Other advantages are more evident. Like the inclusion of sophisticated, genuinely useable communications software, something others offer as an expensive option.

### Hardware considerations:

While most people just plug the DataLink 2400 in and go, advanced users will find a host of sophisticated features like the ability to select firmware defaults of baud rate, data format, parity and control interrupts. Other modems require a set of obscure commands when running from firmware or don't allow you to disable interrupts.

Our DataLink 2400 has two non-volatile ROMs for pre-setting and storing different

configurations. It saves you the hassle of setting up configurations every time. We also included the ability to save phone numbers in non-volatile ROM, so you don't have to hunt for often-called numbers.

Some modems can't redirect hardware handshake lines even though most bulletin board software packages require these lines to be changeable - the DataLink 2400 can.

### The software story.

We make sure you've got the right software. We include our own.

And the software we include (*OnLine 64\** for the II+ and 64K IIe, *DataTerm* for the IIGs and IIe) comes thoroughly documented, *non-copy protected* on two 5.25" disks and one 3.5" disk, and positively loaded with features others don't have. Like VT52 terminal emulation, enabling you to address more bulletin boards and use them easier.

Our transfer protocols aren't limited to Xmodem. We include Xmodem, Ymodem, 4modem, ProDOS Xmodem and Turbo Xmodem. We also employ binary packing, squeezing and unsqueezing—techniques that divide, combine and compress files to save you time and long distance charges.

Some bulletin boards require different data formats. If you can't change formats you can't use them. Our software lets you change formats. Others don't.



### More features:

- Full Hayes AT compatibility
- Compatible with AppleLink, Point-to-Point, ASCII Express, Access II and others
- Compatible with Bell 103 and 212, European CCITT V.22 BIS, V.22 and V.21
- Two modular jacks with long cable
- Built-in capture buffer
- Adaptive equalization and descrambling
- PC Transporter compatibility
- Macro-making program
- FCC certified design
- \$200 in free memberships, discounts and on-line time to get you started
- Proudly made in the U.S.A.

Choose an AE DataLink modem for the completeness of a total communications package, the ease of use that our step-by-step instructions assure and the reliability of our name and famous five-year warranty.

**DataLink 1200\* . . . . . \$179**

**DataLink 2400 . . . . . \$239**

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.

\*OnLine 64 and DataLink have most, but not all the features of DataTerm and DataLink 2400 respectively.

## PRODUCT INFORMATION

**AppleWorks Classic**, \$249  
**AppleWorks 3.0**, \$249  
 \$79 upgrade from 2.0, 2.1  
**AppleWorks GS**, \$299  
 \$169 upgrade from MultiScribe  
 \$149 upgrade  
 from MultiScribe GS  
 \$99 upgrade  
 from AppleWorks 2.0, 2.1  
 Claris Corporation  
 5201 Patrick Henry Drive  
 P.O. Box 58168  
 Santa Clara, CA 95052-8168  
 (415) 960-1500

**Publish It! 2**, \$129.95  
**Symbols & Slogans**, \$39.95  
 Timeworks Inc.  
 444 Lake Cook Road  
 Deerfield, IL 60015  
 (312) 948-9200

Shape	Left Start	Top Start	Width	Height
<b>Round Rectangle</b>				
<b>A</b>	3.544	0.962	1.850	1.000
<b>Rectangles</b>				
<b>B</b>	1.569	2.989	1.925	1.000
<b>C</b>	3.500	1.962	1.937	1.937
<b>D</b>	5.443	2.898	1.925	1.000
<b>E</b>	1.563	3.898	1.937	1.937
<b>F</b>	3.500	3.898	1.937	1.937
<b>G</b>	5.347	3.898	1.937	1.937
<b>H</b>	1.563	5.836	1.937	1.937
<b>I</b>	3.500	5.836	1.937	1.937
<b>J</b>	5.437	5.836	1.937	1.937
<b>K</b>	1.563	7.772	1.937	1.937
<b>L</b>	3.500	7.772	1.937	1.937
<b>M</b>	5.437	7.772	1.937	1.937

**Table.** Object specifications (inches).

There's a way around even this problem: On objects C, I, and L try using clip art that's radially symmetrical, such as the Star of David I imported for the box shown in **Figure 3**. Into object C I imported the Star of David illustration "as is" from the **Symbols & Slogans**

art-portfolio disk. I then imported the same illustration into object L but changed the Star to inverse mode (press the spacebar) at the Publish It! cropping screen.

Once you're happy with your design, save it under a new name. Then print a few samples

of your box to practice assembling them.

With a paper cutter or scissors, carefully cut along the perimeter of the box. Next cut the six "borderlines" between objects B/C, C/D, E/H, H/K, G/J, and J/M.

Use a straightedge or graphic-arts "folding

# **EASYDRIVE.** **THE EASY HARD-DISK MANAGER.**

So, your going to buy a hard-disk. The storage capacity is great, and it's easy to use, once you've got it going. But how will you keep it organized, launch an application, or use directories and subdirectories? It can be tedious, frustrating work.

We have the answer. EasyDrive, the top selling software interface for the hard-disk. EasyDrive is **super user friendly**.

EasyDrive automatically installs your programs so that you can choose the applications you want from the EasyDrive menu. Running, removing, backing up, restoring, indexing, copying, moving files, and dozens of other functions are performed on screen. You select the commands. EasyDrive does the work.

EasyDrive comes with full documentation, ProDOS hand book, and is ProDOS 8, 16, and GS/OS compatible. We're continually updating EasyDrive with new, exciting features to keep pace with your changing needs. Watch for updates!

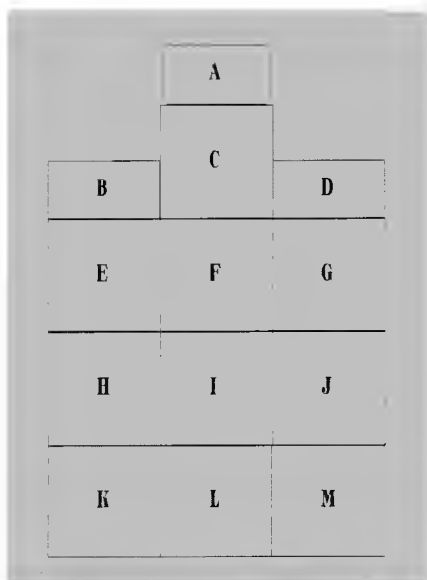
## EasyDrive \$69.95

a product of Q Labs 313/331-0941

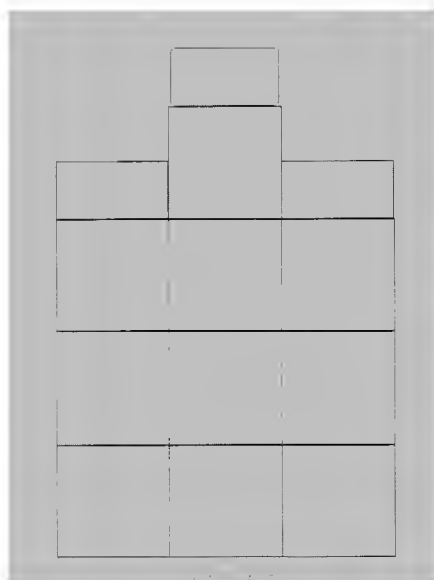
Available from: Quality Computers 1-800-443-6697

Also available from: Roger Coats, Silicon Express, or your favorite dealer

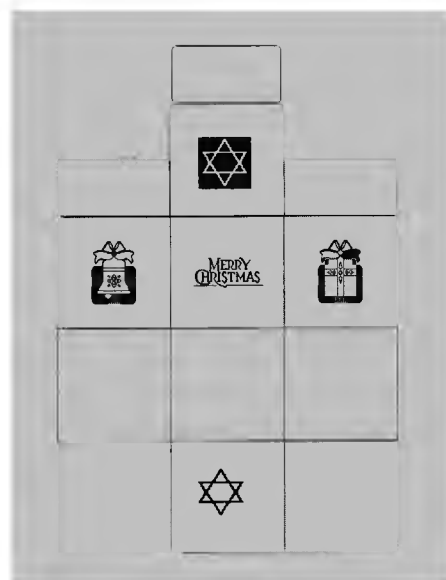




**Figure 1.** Objects creating trinket box.



**Figure 2.** Blank trinket-box template.



**Figure 3.** Final holiday trinket box.

knife" to score and fold all other borders. Place the box (printed side down) on your table or desk. Fold up objects H and J (the two sides next to the bottom of the box, I).

Fold up object L (the front of the box) and with a glue stick paste objects K and M (the

two sides next to the front of the box) onto H and J, respectively. Next, fold up object F (the back of the box) and with a glue stick paste objects E and G onto K and M, respectively.

Next, fold down objects B and D (the box's inside flaps). Finally, fold down object C (the

box top) and insert object A (the closing flap).

#### COLORFUL OPTIONS

When you're ready to print final versions of your box, use brightly colored paper in the printer or copy machine. Wausau Papers' ►

# Now for AppleWorks 3.0! **REPAIRWORKS.** **DON'T LOSE DATA WITHOUT IT.**

In a perfect world a program like RepairWorks wouldn't be necessary. Unfortunately the world isn't perfect and for those who have peered tearfully into a monitor filled with the dying gasps of their precious work, it can almost seem cruel. But, don't despair! RepairWorks can soften the blow of cruel fate when it involves your AppleWorks files.

**RepairWorks examines your AppleWorks files and surgically removes the offending problems, reducing or eliminating the need to recreate your work.**

*"When my AppleWorks crashed, I was looking at hours of rebuilding time. RepairWorks turned my hours into minutes. Thank you RepairWorks."*

*Bruce Bauslaugh, Vero Beach, FL*

*"I wish RepairWorks had been around a few years ago when I was writing my very first feature for inCider."*

*Lafe Low, inCider Magazine*

**RepairWorks \$39.95**

a product of Q Labs 313/331-0941

Available from: Quality Computers 1-800-443-6697

Also available from: Roger Coats, Silicon Express, or your favorite dealer

**inCider Magazine**  
**EDITORS' CHOICE**  
**OCTOBER 1989**

"Astrobrights" line includes 60-pound stock in a variety of dazzling colors. "Re-entry Red" and "Gamma Green" are perfect for Christmas projects. Check with your local print shop or office-supply store for this paper. (Or contact Wausau Papers, Brokaw, WI 54417, 414-675-3361.)

You might just plan to use the boxes you've created as decorations. If so, standard-weight paper should suffice. Just poke a hole in the top (object C). Insert a wire, string, or ribbon

loop, and secure it with a knot or with cellophane tape to the underside of object C. Glue the flap (object A) securely. Hang the boxes on your Christmas tree—or create a holiday-box mobile.

Packaging small gifts in the box requires that you reinforce it somehow. The easiest way is to print the box on colored paper (or on white paper and let the kids color the graphics by hand or add "glitter").

Use a glue stick to paste the complete 8½-

## Pressing Matters

Steve Hawk of Houston, Texas, has encountered a problem that no doubt plagues countless other desktop publishers: too much white space remaining after designing a newsletter and importing text from *AppleWorks*.

Why perform a major overhaul, when you can try one or more of these five simple techniques? You'll not only use up that excess white space but also enhance your publication's appearance and readability.

**1. Split a paragraph.** Look for long paragraphs you can cleave into two (or more) smaller ones. Readers will appreciate your breaking up long passages into more digestible chunks.

**2. Add subheadings.** Subheads help readers go with the flow of an article. When shortened appropriately, section titles from an article's original outline make good subheads.

**3. Switch to a larger font.** If you've used a 10-point typeface convert to its 12-point counterpart.

**4. Insert rules.** At an article's conclusion, rubber-bend a horizontal rule (or double rule) as a visual clue that the article has ended.

**5. Incorporate a pull quote.** Create a rectangle with shaded background, or a plain or patterned border; overlay it with a text area; and copy/paste a telling quotation. Pull quotes can help draw your readers into an article. □

—C.F.

by-11-inch printout onto an equal-sized piece of heavy card stock. Cut and assemble the box according to the instructions given earlier.

Whoa! Don't just think "Christmas" when you customize your box. Experiment with various graphics, messages, and paper colors to create decorations, favors, or gift boxes for celebrations all year 'round. □

CYNTHIA E. FIELD IS A FREE-LANCE JOURNALIST SPECIALIZING IN COMPUTER-RELATED TOPICS. SHE IS A CONTRIBUTING EDITOR AND THE AUTHOR OF *FIELD TRIP*, *INCIDER'S* COLUMN ON EDUCATIONAL SOFTWARE. WRITE TO HER AT 60 BORDER DRIVE, WAKEFIELD, RI 02879. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

## Free Software...

### With Your Holiday Order!

Happy Holidays! To give you more bang for your buck this year, Abracadata is shipping a **FREE** Library disk with every Design Your Own Home: Architecture, Design Your Own Train, or Run Your Own Train order.

#### Design Your Own Home: Architecture

**FREE** Architecture Library disk (\$29.95 value), including 4 dozen plans, with every Design Your Own Home: Architecture ordered by Dec. 31, 1989 that mentions this ad! Or order separately for \$29.95 each.

Computer software that allows for quick and efficient design work. Draw floor plans, side views and structural details. Includes architectural scales, on-screen measurements, grid, overlay, auto-dimensioning. Stud Tool lays beams, joists, studs; calculates lumber. Dozens of architectural shapes included, or create your own. Ask about Interiors and Landscape.

Apple II+, IIe, IIc, IIc+: 64K ... \$69.95  
Apple IIs Version; 1MB ... \$89.95  
IBM/Compatibles (EGA, CGA, VGA, Herc.); 640K ... \$99.95

#### Design Your Own Train and Run Your Own Train

**FREE** Train Library disk (\$29.95 value), including pre-drawn plans, with every Design Your Own Train or Run Your Own Train ordered by Dec. 31, 1989 that mentions this ad! Or order separately for \$29.95.

Build your own train, subway, bus or trolley system without taking up space in your house. Run your trains from the top with *Design Your Own Train*, and if you want to be the engineer, then *Run Your Own Train* lets you run trains from the cab! Apple II+, IIe, IIc, IIc+, IIs; 64K.

Design Your Own Train: \$49.95 (IBM; \$59.95)  
Run Your Own Train: \$34.95  
Macnooga Choo-Choo (MAC) \$49.95

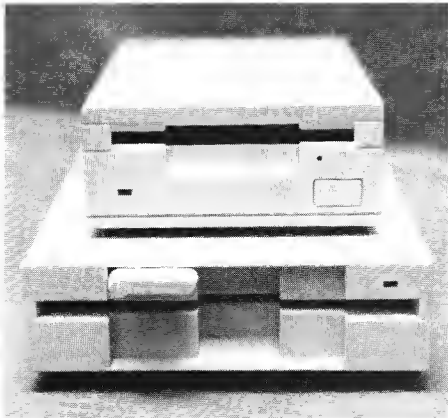


To Order  
Call:  
1-800-451-4871

Or send check or VISA/MasterCard number. Add shipping and handling \$5.00 per package.

**Abracadata**  
the source of plan-making software  
PO BOX 2440, DEPT. D  
EUGENE, OR 97402  
(503) 342-3030





## 5 1/4" DISK DRIVES FOR APPLE

1 Year Warranty  
Parts & Labor  
100% Compatible  
Super Quiet  
Adjustable Speed  
Control

Apple II, II+, IIe  
Franklin Ace 1000  
Apple IIc, IIc+, IIGS  
Apple IIe UniDisk  
Laser 128  
Apple IIc+, IIGS  
Daisy Chain

**\$79.00**

**\$79.00**

**\$99.00**

3 1/2" Disk Drive AMR  
For Apple IIc+ & IIGS

**\$199.00**

Shipping & handling \$5.50

ZIP CHIP 4 Mhz.....\$125.00 8 Mhz.....\$158.00		Extended 80 Column Card With 64K For Apple IIe 100% Appleworks Compatible <b>\$38.95</b> 5 Year Warranty		UNIVERSAL Disk Controller Run 800K Disc Drives on your II+ and IIe \$64.95	
CHECKMATE PRODUCTS					
PRO TERM <b>\$79.95</b>		MultiRam RGB IIe 0K to 1 Meg. from \$121.00		800K DISK DRIVE 3½” for II+, IIe, MAC, LASER 128 \$179.00	
MultiRam IIe 0K to 768K from \$88.50		MultiRam IIc 0K to 1 Meg. from \$105.00		Disk Controller Card For Apple II, II+ & IIe <b>\$34.95</b> 5 Year Warranty	
Memory Saver GS \$109.00		MultiRam GS 0K to 2 Meg. from \$95.00		CPM Card for Apple II+ & IIe <b>5 Year Warranty \$34.95</b>	
AI Juice Plus GS 0K to 4 Meg. .... from \$65.00		Graphics Printer Card w/ Cable For Apple II+ & IIe <b>5 Year Warranty \$44.95</b>		Cooling Fan For Apple II+ & IIe With Surge Suppressor .... \$26.95	
Super Expander IIe 1 Year Warranty W/Appleworks Expansion S-ware 0K to 1 Meg..... from \$52.50		Cables From ..... \$9.95 IIe to Modem IIc to Modem IIe to IMG I IIc to IMG II IIe to IMG II Others Talk & Data Kits SCSI Cables		Cooling Fan For Apple IIGS <b>\$19.95</b> No Noise Interference	
256K RAM..... Call		DISKETTE STORAGE W/Lock 5¼ Holds 70 Disks ..... \$6.95 5¼ Holds 100 Disks .... \$8.95 5¼ Holds 120 Disks .... \$10.95 3½ Holds 50 Disks ..... \$6.95 3½ Holds 100 Disks ..... \$8.95 II+ Owners 16K Card ..... \$34.95 128K Card ..... \$64.95 80 Column Card..... \$48.95 Plus Works ..... \$49.00 5 Year Warranty		ACCESSORIES Mouse Pad ..... \$4.95 Disk Notcher ..... \$4.50 Disk Clean 5¼ ..... \$4.00 Disk Clean 3½ ..... \$4.00 LASER Add on's ..... Call Mouse ..... \$59.00	
Green or Amber Monitor... \$99.00		MINI DIN 8 Switch Box A/B..... \$24.95 A/B/C/D .. \$29.95		5 Amp Power Supply \$49.00 Apple II, II+ & IIe	
Replacement Keyboard For IIe \$55.00		MINI A/B Switch Box Serial or Parallel \$24.95			
LASER 190A Printer <b>\$225.00</b>		LASER 128 EX Three Times the Speed of a IIe Built in Memory Expansion Board <b>\$445.00</b>		Numeric Keypad For Apple IIe \$34.95	
EPIC 2400 Baud Modem <b>\$99.00</b>		Prices subject to change without notice		RF Modulator II+ & IIe \$15.95	
				Joystick for Apple IIe, IIc, IIc+, & IIGS With Fire Button Same as Mach III <b>\$24.95</b>	

We Ship  
2nd Day Air  
Continental US Only

VISA & MASTERCARD — NO EXTRA CHARGE

DEALER PRICING

Most Items +\$4.00 for Shipping - C.O.D. + \$2.75

**MEMORY PLUS DISTRIBUTORS, INC.**

505 South 48th Street, Suite #104

Tempe, Arizona 85281

(602) 820-8819

(602) 830-6457

FAX# (602) 968-3211

Serving Apple Users Since 1983

We carry only the  
Highest Quality products for  
your Apple.  
That's why we are  
the LARGEST  
and  
the BEST!

10 a.m. to 5 p.m.

M.S.T.

Mon - Fri.

University & School P.O.

Accepted

20% Restocking charge  
on returned items

We Ship  
2nd Day Air  
Continental US Only



# INQUIRING MINDS

Programming got you down? Don't despair—this month's column addresses readers' questions and helps puts those worries to rest.

By **JOE ABERNATHY**

THE SPOTLIGHT'S ON YOU THIS MONTH, AS WE TURN GS BASICS over to the mail. From pointers to fonts, North Carolina to the Indian Ocean, programming questions are on everybody's mind.

## AC OVERLOAD?

When running a game program that asks questions, then evaluates your responses, I keep getting strange error messages. This is a fairly complicated program, as it reads a lot of DATA statements, uses the RESTORE statement, rebuilds menus, and goes through a lot of conditional branching. I'm also displaying background pictures created with PaintWorks Gold.

The program's about 800 lines and, before it started misbehaving, it was more than 1000 lines. At one point, I get a Type Mismatch Error on a line that's nothing but a label.

I've talked to the people at Absoft, who try to help, but I wonder whether AC/BASIC is the proper type of GS BASIC to use for a program this large and complex. Would I be better off with another language compiler?

**Jeff Prose**  
Denver, CO

Jeff, it's generally the case with complex programs that half the problems are limitations in the compiler and half are limitations in the programmer—at least with programs I write. Because I don't know what your exact problems are, I can't give you a specific answer.

I, too, have encountered the type-mismatch error on the line label. Switch it to a numeric label such as 250:, and the problem will go away.

Before you drop more money buying a new compiler, take a serious run at isolating your problem(s). To do this, break the program down into the smallest functions possible. Test each of them as a separate program, and once you're certain that each procedure works flawlessly, add another procedure and test them together. Eventually, you'll find the spot where your code is breaking. Be

aware that a problem in one procedure can result from another procedure; a variable overwrite is a very common example of this. Make a list of every variable you use, and trace each through the entire program run.

If after this you determine that AC/BASIC isn't up to the job—and it does seem to get quirky with a really large program—you may want to consider another language. Micol Advanced BASIC has a lot to recommend it, especially for a program such as yours. ByteWorks is also working on what promises

to be a reliable BASIC, and you may want to consider ORCA/Pascal. Pascal is very close to today's BASICS, and even if you want to stick with Micol BASIC, for instance, exposure to the structure of Pascal will help you learn to design big programs in a way that'll produce fewer bugs.

## ADVANCED APPLES

I own an Apple IIe and a IIgs and have programmed in Applesoft BASIC. I now want to learn a language that takes advantage of the GS' features. Ideally, I'd like to avoid investing in a compiler, but if that's not possible, which one has a reasonable price tag? Also, which compiler will let me write applications and desk accessories?

**David A. Larson**  
Aberdeen, SD

Apple kept Applesoft BASIC in the GS, David, but didn't spend a penny bringing it up to date. You'll have to use a GS-specific language compiler to do the jobs you want.

To write new desk accessories, get ORCA/Pascal or ORCA/C (Pascal, if your programming experience is limited; C if you know of and understand data structures and memory addressing, or don't mind learning). They're available from ByteWorks Inc., 4700 Irving Blvd. N.W., Suite 207, Albuquerque, NM 87114, (505) 898-8183.

If you can get by with .SYS16 programs and GDAs, get a copy of Micol Advanced BASIC (Micol Systems, 9 Lynch Rd., Willowdale, Ontario M2J2V6, 416-495-6864). Micol is fast and easy to use for the most part, and retains compatibility with your old Applesoft programs. It also has a set of one-word commands with which you can write (or port Applesoft programs) in the GS desktop metaphor.

## FRENCH FONTS

Because I write in French, I'd like to access some French fonts other than the ones for the ImageWriter II. I'd like to use these fonts, which the TML manual describes, with MultiScribe GS. How can I create these ►



# WINDWALKER™



Journey into the past and explore the fascinating culture, the diverse personalities, and the intriguing events of the ancient Orient. Recruited by Moebius the **WINDWALKER**, you begin as a lowly fisherman, but soon rise to the heights of wisdom and mastery of the martial arts. Possessing the discipline of a leader and the spirit of an adventurer, you've dedicated your life to the pursuit of virtue.



IBM/COMPATIBLE VERSION



IBM/COMPATIBLE VERSION



APPLE VERSION

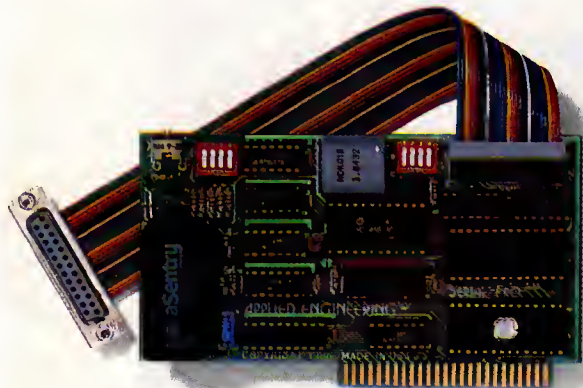
**ORIGIN™**  
We create worlds.™

Available for: IBM/Tandy/compatibles, C-64/128, Apple II series; *coming soon for:* Amiga and Macintosh. Actual screens may vary.

Can't find **WINDWALKER** at your local retailer? Call 1-800-999-4939 (8am to 5pm EST) for Visa/MC orders; or mail check or money order (U.S.\$) to ORIGIN. All versions \$39.95; shipping is FREE via UPS. Allow 1-2 weeks for delivery. ORIGIN, P.O. Box 161750, Austin, Texas 78716.

Circle 42 on Reader Service Card.

# Serial Pro® The intelligent multifunction card from Applied Engineering.



**Serial Pro** is a powerful multifunction card for the Apple IIe, II+, IIgs and compatible computers. Serial Pro combines a powerful serial port for interfacing to a printer, modem or other serial device, with a full function clock/calendar. Serial Pro's serial port is compatible with virtually all letter quality and dot matrix printers, including Apple's Imagewriter and Imagewriter II, and can communicate with the fastest external modems at baud rates from 50 to 19,200.

Set up is easy, because unlike other cards, there are no switches to program serial parameters or disks to use. Serial Pro has a built-in setup screen that allows all parameters to be set. And on-screen help that makes it super-easy. An on-board battery stores your selections for over 20 years, but you can change them at any time. Serial Pro is the perfect upgrade for Super Serial card owners looking for more performance or a built-in clock.

**Serial Port Features** • Fully Super Serial Card compatible but more versatile and easier to use • Compatible with printers • Compatible with modems • Prints graphics to printer (without software) in normal mode, 90° rotation, double size, side by side, and black/white inversion • Variable word length, number of stop bits and parity selection • Crystal controlled circuits are used to provide ultra accurate baud rates.

**Clock Calendar Features** • ProDos, DOS and AppleWorks compatible. Displays time and date on the AppleWorks screen • Automatically time and date stamps AppleWorks files • 20 year auto recharging nickel-cadmium battery • Realtime interrupts • Built-in on screen time and date settings (no software needed) • Does not use phantom slots.

Serial Pro is perfect for Apple IIe, II+, IIgs or compatible owners in need of a serial port or clock/calendar or both. But unlike other multifunction cards on the market, Serial Pro does not use phantom slots, so all the slots in your computer are useable.



Serial Pro comes complete with manual and instructions for interfacing to all the leading printers and modems.

Serial Pro ..... \$139

**Order Today!** See your dealer or call Applied Engineering, 9 a.m. to 11 p.m. 7 days. Or send check or money order to Applied Engineering, MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10.00 outside U.S.A.

**AE APPLIED ENGINEERING™**  
A Division of AE Research Corporation.

*The Apple enhancement experts*

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

## APPLE IIgs BASICS

characters, and can I include them in a word processor?

J.P. Guggenheim  
Bryn Mawr, PA

*What you need is a good predesigned French font, and I just don't know if there is one. There are literally hundreds of commercially available fonts in the public domain, however, which you may want to investigate.*

*Claris sells two font disks; TechAlliance offers six font disks through its public-domain library; and you can download fonts from on-line services and bulletin boards everywhere.*

*Another option is to use a font editor to design your own custom font. The best bet for this is the new Beagle Bros Font Editor, which will work with all GS fonts and older Print Shop-style fonts.*

*Just add these fonts to the \*/SYSTEM/FONTS/ directory to use them with a GS word processor. To implement the Fonts menu in a program of your own design, you'll need the Toolbox calls \_FixFontMenu and \_ChooseFont, both of which are straightforward to implement.*

### POINTING TO TROUBLE

I've noticed a small mistake in the TML BASIC documentation of the reply record-structure array. Page 463 (Appendix C) of the *TML BASIC Reference* manual lists:

#### Elements

6..31

32..159

but it should read as follows:

#### Elements Value

6..21 String!(15) fname\$

22..149 String!(127) fpath\$

Also, I have some problems programming with TML BASIC. I've written to TML twice and never received an answer! Can you help me with the scroll bar in a modal dialog? I think I know how to write the `FUNCTION myscrollbar% (command%, mydialoga, item%)`, but I've tried unsuccessfully to point to this function in the `NewDItem` procedure. I'm also struggling over the `UNPACKBYTES%` function; I get an event-queue error. Finally, I have a problem with the `lineedit` item in modal dialog. When I want to get text I get an "msg I03" error.

One last thing—I'd like to meet people programming with TML BASIC. I live on an island in the Indian Ocean, and although there are quite a few of us with GSeS, not many are programming.

Carole Fox  
Logement de Fonction  
Ecole Mathematique Candide Azema 1  
Rue Mgr Mondon  
97400 St Denis  
France

*I can't help with the UnPackBytes problem, but I have a good idea what's wrong otherwise. TML's facility for handling memory pointers, which both the scroll bar and lineedit items need to do, is flawed—so badly that TML is going to toss out the whole scheme when it updates the language. With some simple things the pointers work, but they break down quickly when you get past anything more complex than, say, \_SFGetFile. I haven't tried to further isolate the problem; doing so wouldn't produce any tangible results.*

*This doesn't help you with your debugging, but at least it can save you from banging your head against the wall. In all likelihood, your code is written properly. Port it into Pascal, C, or another BASIC and it'll probably work.*

*Carole, you mentioned in your letter that you use the French Minitel on-line*



service. Many overseas readers prefer to send mail via an on-line service, because it's free and much faster than traditional overseas mail. To reach this column on line, you must find a gateway to the United States' InterNET system, then address your E-mail to: jabernathy@pro-houston.CTS.COM.

## BOOK IT

Can you recommend any good books for learning to program in Applesoft? I'm also interested in finding sources that discuss programming in BASIC for the IIGS.

**Peter Lundholm**  
St. Cloud, MN

*There are a lot of fine books covering the topics you specify, but it would be impossible to offer a complete list. To get started, however, you might want to pick up one of the following three texts.*

*Your First BASIC Program, by Dr Rodney Zaks (Sybex Books, Berkeley, CA, 1983), offers an introduction to Applesoft that examines such basics as variables, structure, branching, and looping. The book is a bit simplistic, but if you're lost, look here first.*

*David Miller's Mastering Applesoft Graphics (Scott, Foresman Computer Books, Glenview, IL, 1989) covers all aspects of fundamental graphics, shapes, and animation from the II Plus to the GS.*

*Also, BASIC Programs of Scientists and Engineers, by Alan R. Miller (Sybex Books, Berkeley, CA, 1981), shows how to deal with research topics, including mean and standard deviation, vector and matrix operations, and linear equations. The volume also discusses curve fitting, sorting, least squares, Newton's method, and other scientific functions.*

## FROZEN IN TIME

I'm having a problem with TML BASIC freezing with one program I wrote. It freezes every second time I compile to memory and run. The program is about 630 lines, and I'm working with the updated ROM and 1280K of RAM.

**Forest Godfrey**  
AFGodfrey Software  
Ripon, WS

*The most likely solution is to try a different version of your disk-operating system. The compiler you're using was never updated to run with anything past GS/OS version 3.2. Make a copy of your original distribution disk, and try booting cold from it.*

## BASIC UPDATES

A number of these letters—and an even larger number not printed here—deal with various aspects of the same problem: TML BASIC. The latest word from TML Systems (8837-B Goodbys Executive Drive, Jacksonville, FL 32217, 904-636-8592) is that it now has an Apple II product manager who's exploring the feasibility of updating the compiler. Before purchasing TML BASIC, check with the company to ensure that what you're buying is an updated, GS/OS 5.0-compatible product. As of September 1989, the only such IIGS BASICs were Micol Advanced BASIC and AC/BASIC. □

JOE ABERNATHY IS A JOURNALIST WITH THE HOUSTON CHRONICLE. HE'S A CERTIFIED APPLE DEVELOPER AND THE AUTHOR OR COAUTHOR OF EIGHT APPLE II PROGRAMS. WRITE TO HIM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

# DataLink Express™



## The Upgradeable External

Waited long enough for an upgradeable, full-featured modem? Introducing the new DataLink Express™ from Applied Engineering. With the *first* comprehensive status light array. The *first* Line Engage indicator. The *first* upgradeable design allowing for the addition of send-Fax capability and MNP error correction. And the *first* to offer these features affordably.

DataLink Express' exclusive Line Engage light indicates whether the phone line is free or in use, before you log on, to help line-sharing users save transmissions from time-wasting interruptions.

DataLink Express incorporates a perfectly matched Apple-platinum case, along with both Apple-type serial port input (Mini-8) and a DB-25 connector for use with PCs. It's fully Hayes compatible and operates at 300, 1200 or 2400 baud. DataLink Express even has non-volatile configuration memory with synchronous and asynchronous communication and separate line and phone connectors for line sharing.

### Upgradeability

With our optional send-only Fax (available soon), text and graphics can be composed on your Apple II and directly faxed at 4800 baud. And for the ultimate in data reliability, an MNP option assures 100% accuracy, even if phone lines or other equipment are at fault.

### Software, too.

Unlike other modems, you don't have to shop for separate software. Comprehensive communications software for Apple II, Macintosh and MS-DOS computers is included.

### Made by the Apple enhancement experts

Best of all, DataLink Express was designed and built by Applied Engineering, long the leader in Apple enhancement products. AE brings ten years' experience to producing feature-laden peripherals that set the standard for quality and reliability.

**DataLink Express modem .....\$249**  
**MNP option .....\$89**

### Order today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*

A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brand and product names are registered trademarks of their respective holders.



# LEARNING THE LINGO

Bridge the communication gap by reviewing the most common computer-graphics terms. After all, isn't it time you knew your *pel* from your *pixel*?

By **ROBERTA SCHWARTZ**  
and **MICHAEL CALLERY**

COMPUTER-GRAPHICS PROFESSIONALS, just like doctors, lawyers, plumbers, and sportspeople, have their own language. This jargon, although bewildering to the novice, lets the "pros" condense a concept into one or two words. When you read articles on computer graphics, including our columns, you're bound to come across this terminology. So this month, we'll review some common shoptalk to help you master the lingo.

Note that this list hits only the tip of the verbal iceberg—but it's a beginning. The following glossary contains each word's definition followed by a sentence that uses the term.

**aliasing:** The "stair-step" effect on lines and edges of a computer graphic. The higher the resolution, the less apparent the aliasing. This is often referred to as "the jaggies." With Apple II graphics, vertical and horizontal lines look fine, but diagonal lines suffer as a result of *aliasing*.

**anti-aliasing:** The technique of blurring an image to minimize the jaggies, as when you border a diagonal black line with shades of gray, going from dark to light. Some paint programs, such as Paintworks Gold, provide *anti-aliasing* brushes.

**aspect ratio:** The proportion of height to width on a display screen or other output device.

For most computer displays, the aspect ratio is such that objects with the same number of pixels in both vertical and horizontal directions appear elongated on the Y-axis. What appeared to be a perfect circle on screen printed as an ellipse owing to the different *aspect ratios* of the screen and the printer.

**bit map:** The contents of a frame buffer or other graphics data structure, where a bit, byte, or word of memory represents each pixel. Apple II computer graphics are *bit-mapped*, and you can control each pixel on screen.

**bit pad:** An input device consisting of a surface with an attached stylus or puck. Moving the stylus (or puck) on the surface generates position information, which the software can use to place a cursor or enter command information. Bit pads, also referred to as *graphics tablets*, can be based on magnetic, ultrasound, or infrared technology, although magnetic is most common. If you're having difficulty manipulating the mouse, you might want to invest in a *bit pad* device.

**buffer:** An area of random-access memory used to store information temporarily. See *frame buffer*. Because data are stored in a *buffer*, you must save them to disk if you don't want to lose your picture when you turn off the computer.

**clip:** Chop a graphic to fit into a given window or viewport. Resizing a window and making it smaller will *clip* your graphic.

**color lookup table (CLUT):** A small piece of memory set aside within the frame buffer to hold the information about the content (amount of red, green, and/or blue) of each color. See *palette*. The Apple IIGS allows 16 different *color lookup tables*.

**color-table animation:** A type of pseudo animation in which you create the illusion of movement by cycling through a range of hues in a color lookup table. Also called *color cycling*. Some paint applications, such as 816/Paint and Paintworks Gold, include *color-table animation* capabilities.

**composite:** A type of video signal in which the red, green, and blue color signals are combined into one complex signal. See *RGB*. You can view standard- and double-hi-res graphics best on a *composite* monitor.

**digitize:** Convert a drawing, photograph, video source, or other continuous image into pixels. Artists often *digitize* photographs, then enhance them with a paint program.

**dither:** Mix a new hue by placing different-colored pixels next to one another. You can expand the limited color palette of Apple II graphics by *dithering*.

**fill:** Placement of color within a bounded area. The tricky part of using a *fill* is being sure it doesn't leak out because of a missing pixel in the area's border.

**frame buffer:** That portion of RAM that holds a computer graphic. You don't need to see the frame buffer while your program is constructing or loading an image. In BASIC, simply typing HGR will show you the contents of the *frame buffer*.

**map:** Transform an object so that it fits on another object's surface. Using graphics software you can *map* a flag to the surface of a globe or a rough texture to a block of wood.

**NTSC:** National Television Standards Committee, the American standard for a broadcast TV signal. Apple's Video Overlay Card lets you overlay *NTSC* signals on your graphics. ►



# Without Applied Ingenuity you're SUNK!



Diver: David Westbrook, President of Applied Ingenuity. Photo: Phil Blood of Adventure Diving Center, San Dimas.

**Ever get the sinking feeling that you are paying too much for your hardware? Like a breath of fresh air Applied Ingenuity makes quality affordable.**

Applied Ingenuity started a revolution with the first low cost hard drive and we continue to supply innovative products that will enhance your Apple computers capabilities.

We pioneered the InnerDrive product in a third of the time that it took the competition to imitate our concept. Now that's ingenuity!

**NEW 100 meg SCSI InnerDrives.** The fastest & largest IIs hard disk available.

**Falcon:** 10 megabyte hard drive for the cost conscious user. The power of a hard drive is within reach of all users.

**CDrive:** The first and only internal hard disk for the IIc & IIc+. It's fast, inexpensive, and easy to install.

**Ckeeper:** Multifunction memory card for the IIc, Extended memory, RamSaver (programs stay running during power outages),



# AI

## APPLIED INGENUITY

14922M Ramona Boulevard, Baldwin Park, CA 91706

Circle 54 on Reader Service Card.

Clock/Calendar, Program Debugger/hacker, Screen dumper.

**Keyboard X:** Comes with an IBM type keyboard for your IIs or Mac. Program the function keys and keyboard keys for any macro routine. Compatability with any hardware or software.

**VCR Backup:** Tired of the constant disk swapping when backing up onto floppy disks? Backup onto your home VCR. Convenient, low cost.

**InnerDrive:** The first internal hard disk for the IIs. It's 100% compatible, fast and affordable. InnerDrive has proven effective, with more than a year of service and thousands of units sold. Our heavy duty power supply works automatically with all voltages. Unlike others it is cool running and features the first 16 bit data transfer for a IIs hard drive. InnerDrive supports 8 partitions and unlike the competition, utilizes a visual drive indicator. InnerDrive is ProDOS and DOS 3.3 compatible.

**OverDrive:** Compact, and fast, we designed this low cost external hard drive for the IIe, II+, Laser 128, and IIs.

**Juice Plus:** Up to 4 megabytes of memory for your IIs. 100% Apple and DMA compatible.

Call for further details.

### 800-346-0811

IN CA 818-960-1485

IN AUSTRALIA CALL GS IMPORT & SALES  
02-688-0271

**object:** A graphic or a piece of a graphic you can manipulate independently of the rest of the display. Drawing programs, unlike paint programs, work with *objects*.

**packed picture:** A compressed graphics image in which the bit map has been concentrated by a specific algorithm. Contiguous pixels of one color are often combined so that the packed picture reads "20 red" pixels rather than "red, red, red" 20 times. To reconstitute the compressed bit map, you must employ an unpacking program, which uses the same algorithm as the packer. To avoid accumulating a massive number of disks, you might want to *pack* your pictures.

**palette:** A fixed selection of colors available on the graphics screen. Systems with color lookup tables may let you create your own palette from a larger selection of hues. The hardware, however, fixes the number of colors displayed simultaneously. The standard-hi-res *palette* is limited to four colors plus black and white.

**pel:** A picture element. Generally the same as *pixel*, but may refer only to elements you can manipulate. For example, while the Apple double-hi-res display has 560 pixels, you can say it has only 140 pels. (You can see this in Dazzle Draw's zoom mode, depending on whether or not you've selected the color option.) See *pixel* and *resolution*. A computer graphic is nothing more than a profusion of *pels*.

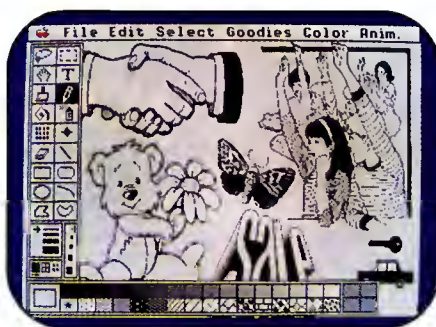
**pixel:** The smallest dot on a computer display; a contraction of *picture element*. It's easier to manipulate individual *pixels* in zoom mode.

**raster:** The horizontal scan of the electron beam as it sweeps the CRT (cathode-ray tube). Because the electron beam lights up dots on screen, we sometimes use *raster* to refer to the grid of pixels on the CRT's surface from which a graphics image is carved. All Apple graphics are *raster* graphics.

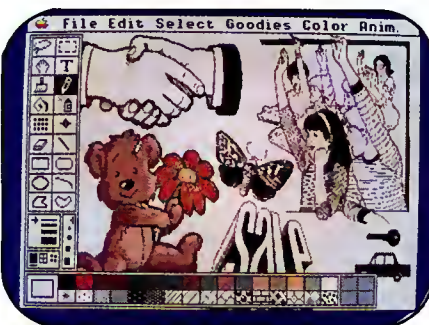
**region:** A graphics area that's usually an irregular object you can fill, drag, or otherwise manipulate. The marquee and lasso tools let you select a *region* of your graphics.

**resolution:** The number of dots you can display on a computer-graphics screen. The greater the resolution, the finer the image. Generally, resolution is given as the product of the number of horizontal pixels times the number of vertical lines. The increased *resolution* offered in super-hi-res is a boon to computer artists.

**RGB:** Acronym for *red/green/blue*. RGB refers to the three guns that shoot a beam of electrons



**Things You See Every Day** offers a vast assortment of black-and-white anti-aliased digitized images.



Using Paintworks Gold, we changed to a color palette and painted the bear. Even with a color palette, the images retain their clarity.

## PRODUCT INFORMATION

**Sharp Tracer**  
Dynatron Co.  
406 Thurber Drive West  
Suite #9  
Columbus, OH 43215  
(800) 451-3589 orders  
(614) 221-0502 questions  
\$21.95

**Things You See Every Day**  
Unlimited Software  
2947 East Holland Ave.  
Fresno, CA 93726  
(209) 456-2995  
\$79.95

toward the face of the picture tube from the rear of a color CRT, and the separate signal required to drive them. See *composite*. Super-hi-res graphics are best displayed on an RGB monitor.

**rotate:** Transform an object by spinning it around an axis. With lower-resolution graphics, your objects become distorted as you *rotate* them.

**rubber-banding:** A method of specifying lines, boxes, or other geometric figures by flashing

the object's outline (often by pressing the mouse button and dragging) until you indicate that the position and size are correct. For precision work such as CAD (computer-aided design), inputting the exact dimensions of a geometric figure is preferable to *rubber-banding*.

**scale:** Stretch or compress an object along different axes. Unless you're working only with vertical and horizontal lines, *scaling* an object will distort it.

**transform:** Alter an object's position or shape. See *rotate*, *scale*, and *translate*. Advanced graphics programs let you select any area of your graphic and *transform* it.

**transitions:** Special effects for changing from one image or scene to another. See *wipe*. Slide-show programs often offer a variety of *transitions* for smooth continuity.

**translate:** Move an object along a straight line in the X, Y, or Z direction. In an animation program it's easy to *translate* an object across the screen.

**viewport:** That portion of the display that is currently active. You map the window contents into the *viewport*.

**window:** That portion of a coordinate system that a particular graphics operation is using. In many modern computers, *window* refers to the division of the display screen into smaller segments. In windowed displays, frequently only one window—the one containing the viewport—is active. In Paintworks, your picture is held within a *window*, while in DeluxePaint it's not.

**wipe:** A type of transition from one graphic to another, in which the second image pushes away another in a systematic pattern (from the top of the screen like a window shade, from the side like curtains, and so on). You can achieve interesting effects by having a series of images *wipe* across the screen.

**zoom:** Enlargement of a portion of the display; often used to enable editing of individual pixels. The best way to clean up your computer graphics is to work in *zoom* mode.

## UPGRADES AND UPDATES

In September ("Now You See It," p. 92) we mentioned that Digital Vision was planning to produce a version of its popular video digitizer, ComputerEyes, that would add digitizing capabilities to the Apple II Video Overlay Card. It seems that the company has put this project on hold. Because ComputerEyes already works well with the Video Overlay Card, the folks at Digital Vision decided that the ►



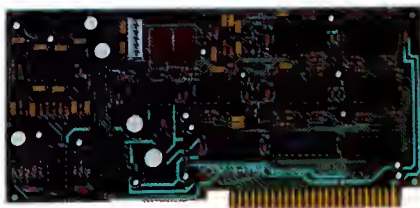


# Sonic Blaster.™ It's why they put the "S" in IIGs.

**Sonic Blaster™, the IIGs's first full-featured stereo digitizer, brings a new dimension to computing...the element of fun.**

Record sounds, tailor them with extensive editing options and play your own amplified versions back through your home stereo speakers. Sonic Blaster automatically digitizes and plays back GS games that use the computer's built-in Ensoniq sound chip (as almost all do), with thundering results.

Kick back with your favorite computer game and immerse yourself in a roomful of sound effects. Create strange answering machine messages. Drop an interesting background sound into your phone conversations (we provide 17 to get you started). Change screen colors with a virtually infinite palette of color.



*Sonic Blaster's ultra-low-noise digital design is certified by the FCC.*

## Use your own equipment.

Use the equipment you already have. You don't need special amplified speakers because Sonic Blaster's built-in amplifier works with standard 8 Ohm speakers, small or large, including those monsters next to your stereo. Take sounds from your favorite TV show, album, compact disk, VCR, even a microphone. Then amplify, play backward, create echoes and

fades, cut, copy and paste with the Super Hi-Res software we include.

**We designed Sonic Blaster to be complete. Here's a quick tour of part of the software screen:**

### The Buttons

Stop, Play, Pause and Record buttons, perform the same functions they do on a tape recorder. Also included are Single and Continuous Play buttons and a VU Meter to visually represent input levels.

### The Sound Graph

The Sound Graph is the waveform at the bottom of the screen. Portions of the Sound Graph are selected with the mouse and then edited using the cut, copy and paste options within the Edit menu.



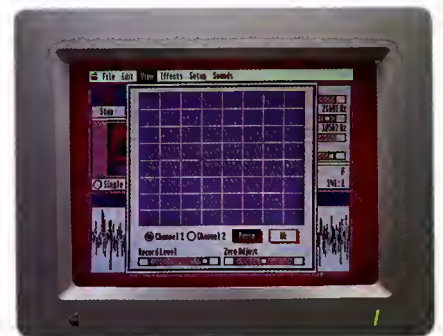
*Seventeen sound effects to get you started. Add your own collection of sounds.*

### The Bars

The Volume bar controls amplitude of the playback. Playback and Record mode sample rates are adjusted with the next pair of bars and the Record Level bar adjusts the level from the source connected to the Sonic Blaster's input connector.

### The Blocks

Three blocks give readouts of file length, available memory, bytes selected and resolution ratio.



*"See" the sound on the oscilloscope.*

### The Oscilloscope

Sonic Blaster's built-in oscilloscope gives you a real-time display of input sounds. Use it to set your input levels before recording. Or use the Auto Gain feature to adjust the level automatically.

**Sonic Blaster**

**\$129**

### Order Today!

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering. MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**

*The Apple enhancement experts.*

A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.

**NEW!**

**LOW FACTORY DIRECT PRICES!**

**UNIV & SCHOOL P.O.'S WELCOME!**

**DEALER INQUIRIES INVITED**

**GS RAM UPGRADES**

**AI 4 MEG GS RAM BOARD.** DMA compatible. Expands IIgs to 4.25 Meg. w/1MEG .. \$199  
**AE GS-RAM Plus 6 MEG RAM board.** DMA comp. Expands GS to 6.25 Meg. w/1MEG .. \$279  
 Above w/2 to 6 Megabytes ..... Call  
**256K RAM Set (8pc) 120ns 5 Yr Wty .....** \$49  
**1 MEG RAM Set (8pc) 100ns 5 Yr Wty ....** \$139  
**TRANSWARP GS** by Applied Engineering .. \$319

**SOUNDSYSTEM 2 For IIgs**

**New 2-Way Stereo Amplified Speaker Pair!** These thunder pods put the S in your GS operations, at one third the cost of Bose.  
**FREE Demo Program .....** \$129

**AE RAM BOARDS**

**RAMWORKS III w/256K .....** \$149  
**RAMFACTOR w/256K .....** \$199  
 Above w/512K or 1 Megabyte..... Call

**IIe/IIc MEGABYTE RAM**

**Super Expander E** for U.S. & European IIe. Licensed by Applied Engineering. A 100% replacement for Extended 80 Card. Expands Appleworks desktop to 998K and allows instant switching between modules. w/OK .. \$59  
 Above w/256K ..... \$108  
 Above w/512K or 1 Megabyte..... Call  
**Super Expander C** Expands IIc to 1152K, Appleworks desktop to 10652K, & allows instant module switching. w/OK ..... \$69  
 Above w/256K ..... \$118  
 Above w/512K or 1 Megabyte..... Call

**QUIET COOLING FANS**

**SuperFan II** for II+/IIe. Kensington Style w/surge protect & twin rear AC outlets.... \$27  
**Super Cooler GS** for your IIgs. No audio line interference. Internal Mount ..... \$24

**PRO-KEYPAD for IIe/IIc**

Numeric data entry made simple. Includes mathematic, decimal & RETURN keys.  
**PRO KEYPAD for U.S. & European IIe ....** \$34  
**PRO KEYPAD for U.S. & European IIc ....** \$39

**APPLE II Plus OWNERS**

Run Appleworks on your II+ or Franklin Ace! Plusworks 2 will configure your A.W. startup & program diskette to run on your computer. Not a preboot, a one time configure package. (Requires 80 Col, 64K, & Shift Key Mod) ..... \$35  
**16K RAM BD.** Expands II+ from 48K to 64K .. \$34  
**128K RAM BD.** Legend/Titan Compatible .. \$64  
**DOS/ProDOS Emulator** for above 128K BD. .. \$24  
**80 Column II+ Board** Videx compatible ... \$48  
**Shift Key Modification .....** \$7  
**Lower Case Adapter.** Rev. 7 & up ..... \$12

**NO SLOT CLOCK IIe/IIc**

Fits underneath your CD or CF ROM. Appleworks compatible. Free software..... \$39

**FALL SPECIALS**

**PBC EXTENDED 80 COLUMN CARD** for Apple IIe. Expands IIe to 128K (Appleworks desktop to 56K). Super sharp 80 column display, soft switch select 40/80 columns, & Double Hi-res graphics, all built-in! ..... \$35  
**Super Serial Board** 100% replacement for Apple Super Serial Card, this versatile RS232 board can be used for all modems and serial printers. For II+/IIe/IIgs ..... \$48  
**SSB to Imagerwriter I cable 10' .....** \$11  
**SSB to Imagerwriter II cable 10' .....** \$11  
**SSB to Modem (Standard RS232) 10' .....** \$11

**MORE SUPER SPECIALS!**

**Graphic Parallel Board** w/6ft cable. Text & graphic screen prints. Versatile graphics including inverse/normal, enhanced, 90 degree rotate & double size print. II+/e/gs. .... \$44  
**Parallel Printer Board** w/cable. Text print only. Used where graphics is not required. .... \$35  
**Z80 CP/M Board** Opens the CP/M world for II+/e/gs. Microsoft & Turbo Pascal Comp.. .... \$34  
**Joystick III** Similar to the Hayes Mach III, with large fire button on stick ..... \$24  
**5 AMP Power Supply.** Drop in replacement for II+/IIe supply. Double the amp power! .. \$49  
**TV Modulator** Connects your Apple II+/IIe to any color or black/white TV ..... \$15  
**Serial/Parallel Converter.** Connects your IIc to any parallel printer ..... \$49

**DISK DRIVES!**

**Disk Drive H/H** for Apple II+/IIe ..... \$119  
**Disk Drive H/H** for Apple IIc/IIgs ..... \$119  
**Disk Drive H/H** Daisy Chainable for IIgs .. \$149  
**Disk Controller Board** II+/IIe/IIgs ..... \$34  
**DISK DRIVE 3.5" Full GS compatible .....** Call

**VULCAN HARD DRIVE by A.E.**

**20 MEG VULCAN** Specify IIe or IIgs ..... \$515  
**40 MEG VULCAN** Specify IIe or IIgs ..... \$675  
**100 MEG VULCAN** Specify IIe or IIgs..... Call

**GAMEPORT SWITCHBOX**

Switch between mouse & joystick or any two gameport peripherals. Free master cable .. \$29

**APPLETALK CONNECTION!**

Localtalk Replacement kit w/balanced RS422 transformer & 25 foot cable..... \$29

**COPY II PLUS**

The ultimate copy program. For 5.25"-3.5"-Hard drives.  
 8.4 w/5 1/4 diskette ..... \$15  
 8.4 w/5 1/4 & 3 1/2 diskettes ..... \$25

**APPLEWORKS CLOSEOUTS!**

**COMPLETE PACKAGE:** Startup/program diskette, tutorial diskette, sample templates, & A.W. manual. Not upgradable by Claris.  
**Appleworks Version 1.2 Package .....** \$59  
**Appleworks Version 1.3 Package .....** \$79

**5 YEAR WTY PC BOARDS/2 YEAR WTY ALL OTHERS**  
**CALL or WRITE FOR OUR FREE COLOR CATALOG**  
**ADD \$3 SHIP/C.O.D. OKAY/VISA/MC NO EXTRA FEE**



**PRICE BUSTERS (619) 589-0081**

4233 Spring St., Ste. 402, La Mesa, CA 92041

Monday-Friday 10 a.m-6 p.m. P.S.T.

**SPEAKING**  
OF GRAPHICS

add-on card would offer no real advantage over its existing products right now.

**GRAPHICS IMAGES**

Don't have a digitizer, but need high-quality digitized art for your artistic or desktop-publishing efforts? Unlimited Software (a division of Oltrad Graphics) has released a new set of clip art for the Apple IIgs. The five-disk set titled **Things You See Every Day** contains 160 pages of graphics.

Each page has at least three images; most offer many more. Among the everyday items you're going to find are clocks, food, furniture, cars, buildings, symbols, people, and animals. We're not sure how many of us see tanks, missiles, and military fighter planes daily, but they're there, too.

Most of the images are of exceptional quality, although some may need a little touching up in your favorite paint program. Of course, half the fun of using clip art is in altering the images to suit your needs.

The graphics, stored as Apple Preferred Format files, should be acceptable to most GS programs. Because the images are black-and-white, they're especially suitable for use in Roger Wagner's HyperStudio. The package includes a booklet with printouts of the entire collection.

**MOUSE TRACING**

After reading in "Mousing Around" (August 1989, p. 84) that we could no longer find special devices that snapped onto your mouse to aid tracing, Ellen Carr of Turnerville, New Jersey, wrote us with a lead. Ellen had just received a mailing from the Dynatron Company, and she noted a description of the **Sharp Tracer**, a plastic box that fits over your mouse (Apple brand only) and contains a lens with cross hairs for tracing. It appears to be exactly what we were describing in the column.

**GRAPHIC FAREWELL**

Thanks for the tip—and as they say in the world of computer graphics, may all your jaggies be little ones. □

ROBERTA SCHWARTZ AND MICHAEL CALLERY  
 TEACH COMPUTER GRAPHICS AND DESKTOP PUBLISHING AT THE NEW SCHOOL FOR SOCIAL RESEARCH IN NEW YORK. WRITE TO THEM C/O INCIDER, 80 ELM STREET, PETERBOROUGH, NH 03458.



# Advanced Dungeons & Dragons®

COMPUTER PRODUCTS

## TRIPLE YOUR FANTASIES.

### DUNGEON MASTERS ASSISTANT, VOL. II

Utility program to help Dungeon Masters generate characters and treasures quickly for AD&D game campaigns.

APPLE II  
C-64/128  
COMING SOON:  
IBM



ADVANCED DUNGEONS & DRAGONS, AD&D, FORGOTTEN REALMS, DRAGONLANCE and the TSR logo are trademarks owned by and used under license with © 1989 TSR, Inc. 1989 Strategic Simulations, Inc. All rights reserved.

### WAR OF THE LANCE

DRAGONLANCE™ Strategic Fantasy Wargame

APPLE II  
COMING SOON:  
IBM  
C-64/128

### CURSE OF THE AZURE BONDS

FORGOTTEN REALMS Fantasy Role-Playing Epic

IBM  
APPLE II  
C-64/128

To Order: Visit your retailer or call 1-800-245-4525 to charge on VISA or MasterCard. To receive SSI's complete product catalog, send \$1.00 to: SSI, 675 Almaden Avenue, Sunnyvale, CA 94086.



STRATEGIC SIMULATIONS, INC.®

SHORTSHORO +2, OF QUICKNESS  
LONGSHORO +1, CURSED \*  
LONGSHORO +1  
LONGSHORO OF THE PLANES (NEUTRAL GOOD),  
SPEECH & TELEPATHY, LANGUAGES 3, LOCATE  
OBJECT IN A 128' RADIUS, DETECT TRAPS  
OF LARGE SIZE IN A 16' RADIUS, DETECT  
INVISIBLE OBJECTS IN A 16' RADIUS,  
TELEKINESIS (2,500GP MAX, 2 TIMES/DAY,  
1 ROUND PER USE), IQ:17, EGO:17  
LONGSHORO +4, DEFENDER  
BROADSHORO +2, CURSED BERSERKING \*  
SHORTSHORO +4, DEFENDER  
[[  
<<>><<->>CURSOR UP, DOWN, LEFT, RIGHT,  
<CTRL-D> DELETE, <CTRL-P> NEW PARAGRAPH,  
<CTRL-Q> QUIT, ANYTHING ELSE TO INSERT?

APPLE II DISPLAY



APPLE II DISPLAY

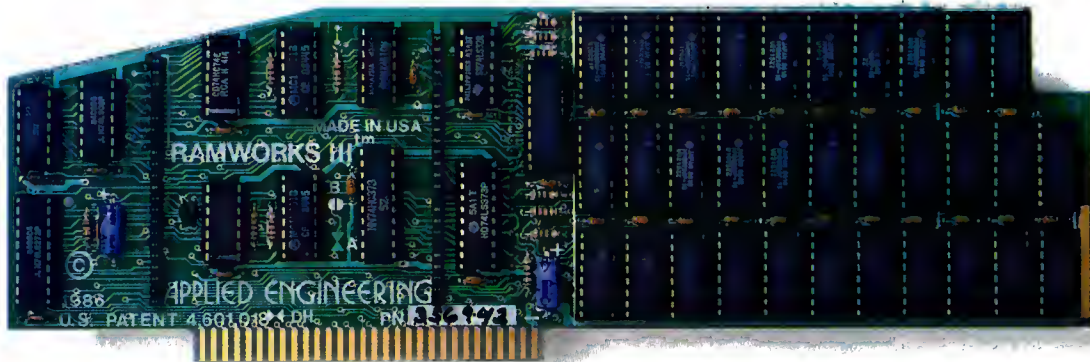


IBM DISPLAY



# RamWorks® III

*Patented Performance from the Recognized Leader*



*The Best Selling, Most Compatible, Most Recommended, Most Expandable Card Available.*

## **The AppleWorks Amplifier.**

While RamWorks III is recognized by all memory intensive programs, NO other expansion card comes close to offering the multitude of enhancements to AppleWorks that RamWorks III does. Naturally, you'd expect RamWorks III to expand the available desktop, after all Applied Engineering was a year ahead of everyone else *including Apple* in offering more than 55K and we still provide the largest AppleWorks desktops available. But a larger desktop is just part of the story. Look at all the AppleWorks enhancements that even Apple's own card does not provide and *only* RamWorks III does. With a 265K or larger RamWorks III, *all* of AppleWorks (including printer routines) will automatically load itself into RAM dramatically increasing speed by eliminating the time required to access the program disk drive. Switch from word processing to spreadsheet to database at the speed of light with no wear on disk drives.

RamWorks eliminates AppleWorks' internal memory limits, increasing the maximum number of records available from 1,350 to over 22,000. *Only* RamWorks increases the number of lines permitted in the word processing mode from 2,250 to over 22,000. *Only* RamWorks expands the maximum clipboard limit from 250 to 2,042 lines. And *only* RamWorks offers a built-in printer buffer, so you won't have to wait for your

printer to stop before returning to AppleWorks. And auto segments large files so they can be saved on two or more disks. You can even have Pinpoint or MacroWorks and your favorite spelling checker in RAM for instant response.

RamWorks, *nothing* comes close to enhancing AppleWorks so much.

## **The Most Friendly, Most Compatible Card Available.**

Using RamWorks III couldn't be easier because it's compatible with more off-the-shelf software than any other RAM card. Popular programs like AppleWorks, Pinpoint, TimeOut series, HowardSoft, FlashCalc, PROFILER, Managing Your Money, SuperCalc 3a and VIP Professional to name a few (and most hardware add on's like ProFile and Sider hard disks). RamWorks is even compatible with software written for Apple cards. But unlike other cards, RamWorks plugs into the IIe auxiliary slot providing our super sharp 80 column text (U.S. Patent #4601018) in a completely integrated system while leaving expansion slots 1 through 7 available for other peripheral cards.

RamWorks III is compatible with all Apple IIe's, enhanced, unenhanced, American or European versions.

## **Highest Memory Expansion.**

Applied Engineering has always offered the largest memory for the IIe and

RamWorks III continues that tradition by expanding to 1 full MEG on the main card using standard RAMs, more than most will ever need (1 MEG is about 500 pages of text)...but if you do ever need more than 1 MEG, RamWorks III has the widest selection of expander cards available. Additional 512K, 1 MEG, or 2 MEG cards just snap directly onto RamWorks III by plugging into the industry's only low profile (no slot 1 interference) fully decoded memory expansion connector.

## **It Even Corrects Mistakes.**

If you've got some other RAM card that's not being recognized by your programs, and you want RamWorks III, you're in luck. Because all you have to do is plug the memory chips from your current card into the expansion sockets on RamWorks to recapture most of your investment!

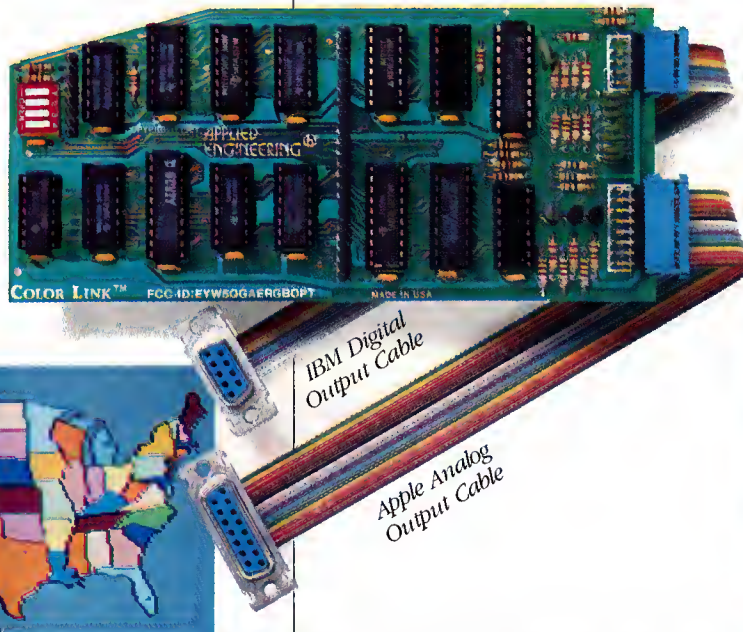
## **The Ultimate in RGB Color.**

RGB color is an option on RamWorks and with good reason. Some others combine RGB color output with their memory cards, but that's unfair for those who don't need RGB *and* for those that do. Because if you don't need RGB Applied Engineering doesn't make you buy it, but if you want RGB output you're in for a nice surprise because the RamWorks RGB option offers better color graphics plus a more readable 80 column text (that blows away any



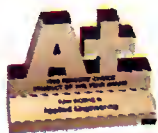
composite color monitor). For only \$129 it can be added to RamWorks giving you a razor sharp, vivid brilliance that most claim is the best they have ever seen. You'll also appreciate the multiple text colors (others only have green) that come standard. But the RamWorks RGB option is more than just the ultimate in color output because unlike others, it's fully compatible with all the Apple standards for RGB output control, making it more compatible with off-the-shelf software. With its FCC certified design, you can use almost any RGB monitor because only the new RamWorks RGB option provides both the new Apple standard analog and the IBM standard digital RGB outputs (cables included). The RGB option plugs into the back of RamWorks with no slot 1 interference and remember you can order the RGB option with your RamWorks or add it on at a later date.

#### ColorLink™ RGB Option



#### True 65C816 16 Bit Power.

RamWorks III has a built-in 65C816 CPU port for direct connection to our optional 65C816 card. The only one capable of linearly addressing more than 1 MEG of memory for power applications like running the Lotus 1-2-3™ compatible program, VIP Professional. Our 65C816 card does not use another slot but replaces the 65C02 while maintaining full 8 bit compatibility.



#### Endorsed by the Experts.

A+ magazine said "Applied Engineering's RamWorks is a boon to those who must use large files with AppleWorks...I

like the product so much that I am buying one for my own system." inCider magazine said "RamWorks is the most powerful auxiliary slot memory card available for your IIE, and I rate it four stars...For my money, Applied Engineering's RamWorks is king of the hill"



*"I wanted a memory card for my Apple that was fast, easy to use, and very compatible; so I bought RamWorks"*

Steve Wozniak, the creator of Apple Computer

Apple experts everywhere are impressed by RamWorks' expandability, versatility, ease of use, and the sheer power and speed that it adds to any IIE.

- Can use 64K or 256K RAMs
- Powerful linear addressing 16 bit coprocessor port
- Automatic AppleWorks expansion up to 3017K desktop
- Accelerates AppleWorks
- Built-in AppleWorks printer buffer
- 100% compatible with all standard IIE software
- RamDrive™ and ProDrive™ the ultimate emulation software included free
- Memory is easily partitioned allowing many programs in memory at once
- Compatible RGB option featuring ultra high resolution color graphics and multiple text colors with cables for both the new Apple and standard IBM type monitors
- Self diagnostics software included
- Lowest power consumption (U.S. Patent #4601018)
- Takes only one slot (auxiliary) even when fully expanded
- Socketed and user upgradeable
- Software industry standard
- Advanced Computer Aided Design
- Used by Apple Computer, Steve Wozniak and virtually all software companies
- Displays date and time on the AppleWorks screen with any ProDOS compatible clock
- Much, much more!

RamWorks III with 64K	\$159
RamWorks III with 256K	\$199
RamWorks III with 512K	\$249
RamWorks III with 1 MEG	\$349
RamWorks III with 1.5 MEG	\$489
RamWorks III with 3.0 MEG	\$789
Ram Expander+ 1 MEG	\$300
Ram Expander+ 2 MEG	\$500
65C816 16 Bit Card	\$159
ColorLink RGB Option	\$129

#### Quality and Support of the Industry Leader.

RamWorks III is from Applied Engineering, the largest, most well supported manufacturer of Apple peripherals and the inventor of large RAM cards for the Apple. With our 5 year warranty and outstanding technical support, you're assured of the most trouble free product you can buy.

#### It's Got It All.

- 15 day money back guarantee
- 5 year warranty
- Built-in super sharp 80 column display (U.S. Patent #4601018)
- Expandable to 1 MEG on main card
- Expansion connector for possible future expansion to 16 MEG

RamWorks III. The industry standard for memory expansion of the Apple IIE. ORDER YOUR RamWorks III TODAY.

See your dealer or call (214) 241-6060, 9 a.m. to 11 p.m., 7 days, or send check or money order to Applied Engineering.

MasterCard, Visa and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10.00 if outside U.S.A.

**AE APPLIED ENGINEERING®**  
The Apple enhancement experts  
A Division of AE Research Corporation.

**(214) 241-6060**

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice.



Junior writers can decorate each scene with as many as 15 graphics elements.

The colors in the background scenes are permanent. A Color option, however, lets kids alter the shades of any Picture Library image. Clicking on the Color button calls up a 16-color palette. Kids select a color by first clicking on it, then moving the pointer to an area of the graphic they'd like to change. When they click again, the selected color flood-fills that portion of the image.

## WORD AND IMAGE

When children complete an illustration, they're ready to call on Kidwriter's word-processing tools to add text at the bottom of the screen. Children may also enter text anywhere on the background, as long as the cursor appears in the shape of a square. If the cursor looks like a pointer, click on the ABC icon to invoke text mode.

Kidwriter provides a limited number of text-editing options. It features word wrap and type-over mode rather than insert-character mode. Youngsters can add spaces and lines or delete characters, if necessary. There's room



for seven lines of text beneath each illustration. If children require more space for text, they may add a blank page to a picture story by clicking on the arrow in the top right corner of the screen.

Kids can save their stories as single-page documents, or if they want to create a multi-page storybook, they can click on the arrow key to add a new story page. They can also

insert a new page before the current one or delete the current page by clicking on the Page button at the top of the screen.

The Play button will run through all pages in the story and provide musical accompaniment. The Tools button calls up the printer option to print a story page—or an entire story—on an ImageWriter or Epson.

Spinnaker should be commended for selling Kidwriter Golden Edition without copy protection; teachers and parents can make a backup as a safeguard. The absence of copy protection increases the program's versatility in a classroom or home setting.

## NOT QUITE PERFECT

Although Kidwriter has much to offer any elementary language-arts curriculum, it's not quite perfect. Several peculiarities detract from its overall success. While these aren't major problems individually, collectively they make the program more difficult to operate.

First, Kidwriter lacks a disk-formatting option. To save stories on disk, kids (or teachers) must prepare ProDOS-formatted disks before booting the program. If you exit the program



**K**ids are key to America's future. And so are computers. By the year 2010, virtually every job in our nation will require some computing skills. That means preparing all of our youth today to take on technology tomorrow.

Our students' math and science scores are far below those in other countries. To excel in our high tech times, our kids need to catch on to computers. They're tools that can inspire them to think more independently. More creatively.

The Computer Learning Foundation is a non-profit organization that's taking the lead in computer literacy efforts nationwide. We're bringing together companies, state departments of education, national non-profits and local groups.

Our Computer Learning Month in October is a focus for thousands of community and classroom programs. We've involved millions in discovering the benefits of computing.



to format a data disk, you'll lose all work screens in progress.

Kidwriter's interface departs from the standard IIGS style. The menu bar rests at the bottom of the screen, rather than the top. The program offers poor error handling in the Color tool option. If kids try to modify a color on a background screen, nothing happens because the hues are permanent. Kidwriter should provide an alert box to inform kids they can't modify the background screen's colors when they try to make changes.

#### RESTRICTIONS

The well-written manual gives an adequate description of all program options, but doesn't include a printed catalog of backgrounds and pictures. Kids have to scroll through each picture to see what's available. Thumbnail sketches would be more convenient in a classroom setting with a limited number of computers. Kids could look at the pictures and think about what to write before actually sitting down at the computer. In addition, the absence of an image-library catalog promotes linear thinking rather than free association.

Youngsters must look at the graphics serially rather than appreciate them in groups.

The Kidwriter storybooks are neither self-booting nor self-running. While the program demo changes screens automatically, picture books saved to disk require you to press the spacebar to advance through the pages. Also, the storybooks require Kidwriter to run; you can't view a story unless you've first loaded the program. Finally, if the music in the demo program or accompanying a story proves distracting, Kidwriter offers no way to turn off the sound.

#### THE GOLDEN RULE

Despite these minor criticisms, Kidwriter Golden Edition is a versatile writing tool. It's fun and educational. Some kids will enhance their stories with the high-quality graphics images provided. Others will use the backgrounds and pictures as story starters to stimulate creative thought. Both options facilitate the writing process, resulting in improved language skills.

**Carol S. Holzberg, Ph.D.**  
**Shutesbury, MA**

## FLOATING POINT ENGINE

**INNOVATIVE SYSTEMS,  
P.O. Box 444, Severn, MD 21144-0444,  
(301) 987-8888**

12-MHz 68881 floating-point math coprocessor;  
Apple IIe, IIGS (includes software interface for Apple IIGS; programmer's macro libraries for 6502, 65C02, and 65C816; and interface for 8-bit AppleWorks); \$229

**Rating: ♦ ♦ ♦ ♦**

**N**o, it doesn't swim, and you shouldn't immerse it in water. So what exactly is the Floating Point Engine? It's an Apple II expansion card that accelerates the speed of numerical operations only. For businesspeople, financial and statistical analysts, and serious AppleWorks users, it's a tremendous time saver.

As a floating-point math coprocessor, the FPE has one great advantage: the way it works with operations involving extensive numerical manipulation (called floating-point numbers, because the decimal point moves). That may sound obscure, but a math coprocessor is basically just a way of adding power to your ►



Join us. We're here to help you discover the ease and fun of computing.

Contact the Foundation now for more information about our contests, books, free materials, programs and events. We're dedicated to sharing computer learning ideas. Write us today: Computer Learning Foundation, Dept. IN12 P.O. Box 60007, Palo Alto, CA 94306-0007.

*You Won't Believe  
What You'll Achieve!*





## 100 APPLE PROGRAMS FOR \$39.95

"Best Public Domain Software"

You can get 100 great Apple programs for just \$39.95 (plus \$4 shipping). They work with the Apple II+, IIe, IIC, IIGs, and all compatibles.

The software comes ready to run on five double-sided disks, 10 disk sides in all. Each disk is crammed with useful programs for everyone in your family. You get dozens of educational programs for children from pre-school through high school. There are several programs to help organize everything in your home from addresses and phone numbers to recipes, finances, and record collections. Action and thinking games will entertain your family and friends for hours. You'll have something for everyone.

### A Great Value Guaranteed

Less than 40 cents a program. That's all! No hidden costs; nothing else to buy. **Guaranteed.** If you're not satisfied with your collection, return it for a full refund. You risk nothing. **Advantage Computing** has been working with schools and computer owners for five years and we take pride in our record of customer satisfaction.

### BONUS

Included with each collection is a complete Elementary Math Course. 25 different programs, each presenting a new math concept. These 25 programs are yours free in addition to the Best 100.

### FREE GIFT! Full Featured Data Base

For a limited time, you'll also get a full featured data base FREE when you order. You can store, organize, and print addresses and telephone numbers, recipes, record collections, movies and more. It's great for printing labels. Use it to keep track of all your personal and business finances. It's yours free while supplies last.

### Don't Wait, Order Today!

Place your order right away to be assured of getting The Apple Best 100, the 25 Program Mathematics Course, and the full-featured data base.

To order by phone with VISA or MasterCard, call toll-free 1-800-356-4666. In California call collect (408) 423-5383. Or use the order form to order by mail. Please allow 2-3 weeks for delivery. Next day shipping is available.

### Programs Include

My Spelling Test, Grammar Mad Lib, Haiku, Speed Reading, Hangman, Label Printer, Tic Tac Toe, Word Mastermind, Calendar, Checkbook Balancer, Football NFL, Hockey, Golf, Apple Capture, Scrambled Word, Calculator, Family Finance, German, Logic Practice, Math Dice, Synonym Drill, Wheel of Fortune, Craps, Budget Monthly, Metric Kitchen, Home Mortgages, Food Values, Decision Maker, Monopoly, Typing Practice, Flashcard, Geography, Time Teacher, Battleship, Bowling, Connection, Simon Says, Super Math, Basic Programming, Math Ladder, Capitals of States, Cribbage, Black Jack... and dozens more!

### ORDER FORM

Please send me The Apple Best 100 and Free Gift for \$43.95

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone (\_\_\_\_\_) \_\_\_\_\_

Method of Payment:

Check enclosed \_\_\_\_\_ Visa \_\_\_\_\_ Mastercard \_\_\_\_\_

Credit Card # \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Expires \_\_\_\_\_ IN-1

**Advantage  
Computing**

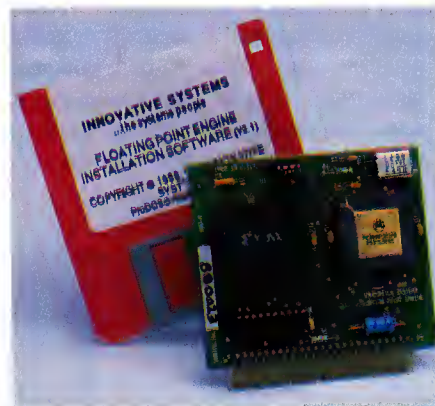
1803 Mission St. #416  
Santa Cruz, CA 95060  
(800) 356-4666  
In California (408) 423-5383

## REVIEWS

computer's native capabilities. All computers have one main microprocessor. A math coprocessor enhances your machine's power by working only on numerical operations and thereby freeing the main processor for other tasks.

You'll find the Floating Point Engine particularly helpful if you use large AppleWorks spreadsheets or graphics programs frequently, write software, or work in fields such as statistics or engineering. Generally, the FPE proves beneficial to anyone who sits around watching an Apple struggle through calculations or sophisticated drawings.

Usually, a numeric coprocessor is no good unless your software has been written to address it specifically. (Remember, it's separate from the main processor for which software is usually written, so it takes different software instructions to call forth the coprocessor.) The



FPE escapes this fate, at least on the GS, by patching the GS/OS system software, so that all programs that use native GS math (the Standard Apple Numerics Environment, or SANE) will know the math coprocessor is available. That includes programs such as AppleWorks GS and the various GS drawing and publishing packages. Actually, many programs will benefit that don't appear to deal in math on the surface. Using a mouse to paint a picture, for instance, involves a lot of behind-the-scenes calculations.

There has been a scarcity of Apple IIe software that can use the FPE because of the problem in letting a program know the card is there; the IIe has no equivalent to the GS' system-wide SANE. ProSEL author Glen Bredon, however, has released a free patch to Applesoft BASIC that will let most existing BASIC programs use the FPE.

At the level of application software, the FPE is invisible, and that makes it useful for a broad range of people with no interest in the techni-

cal aspects—just plug it in and it works. But for those with the inclination—particularly programmers—the FPE has a whole other level of complexity that perhaps qualifies it as one of the most powerful creative tools available.

The Floating Point Engine offers a full implementation of the ANSI-IEEE 754-1985 floating-point standard, and your program can access the FPE at a number of increasingly complex efficiency levels. At its best, FPE can calculate 50-100 times faster than the IIe or IIGs when operating concurrently with the 65C02 or 65C816 main logic chip.

On a IIGs, the easiest approach to writing a program that uses the FPE is to pretty much ignore it. The system-wide SANE patch will catch any higher math and route it through the FPE. So it'll speed up automatically any math you use that's beyond addition and subtraction.

Normally, you'd expect real-number calculation to take longer than integer calculation. With the Floating Point Engine, though, you might be surprised to find that you can speed calculations by using real values rather than integers. Most compilers will handle these real values internally through SANE, letting you force these relatively simple operations into the faster FPE.

The only easy way to access the FPE on earlier Apple IIs—and by *easy* I mean without learning assembly language—is using Glen Bredon's patch for Applesoft BASIC. Bredon distributes the patch free via download from on-line services. If you don't own a modem, contact him directly at 521 State Road, Princeton, NJ 08540. There'll probably be a postage fee.

A more efficient way to call upon the FPE is to use a custom macro library for your language compiler. These macros enable the compiler to route calls directly to the math unit—a more efficient method than relying on a patch to intercept math calls. The FPE comes with a disk that includes such macro libraries for both the 8- and 16-bit versions of the Merlin and ORCA/M assemblers.

Until recently, the most efficient way of accessing the FPE has also been the most difficult. This involves addressing the FPE directly by writing or reading in standard slot space. This works under DOS 3.2, DOS 3.3, ProDOS 8, and ProDOS 16, and doesn't cost you the overhead of maintaining a macro library in memory.

You can use this technique even if you're



not an advanced programmer. ByteWorks (4700 Irving Boulevard N.W., Suite 207, Albuquerque, NM 87114, 505-898-8183) has incorporated direct FPE support into ORCA/Pascal (as an update) and the new ORCA/C. The Pascal update costs \$5; the ORCA/C compiler is \$150. Programmer Mike Westerfield says that the upcoming ORCA/BASIC also will include this FPE support.

Advanced programmers who use languages other than ORCA have 46 instructions (35 for arithmetic) available; a complete suite of trigonometric and transcendental functions; and 22 constants (including  $\pi$ ,  $e$ , and powers of 10). Data formats include byte, word, and long word integers; single, double, and extended-precision real numbers; and packed, binary-coded, decimal-string real numbers.

The FPE also offers eight noncorruptible, general-purpose, 80-bit, floating-point data registers. You just might make it through your whole life without wanting to write to 80-bit data registers from assembly language, but there's a secret here. People with the technical mastery to worry about such things consider a lack of data registers to be among the Apple II's more serious weaknesses.

This is where the possibility of more and better software comes in. By using those extra FPE registers, developers can create language compilers that are much more powerful than those currently available. Programmers using these new compilers would be able to generate applications that are impractical at this time.

The FPE will work in conjunction with any traditional system-wide accelerator you might own. For instance, if you were drawing a picture, you could have a TransWarp speeding up the screen drawing, while your FPE boosts the internal graphics calculations.

If you do combine FPE with a system-wide accelerator, it's ostensibly possible to upgrade the FPE to 16- or 20-MHz operation by replacing a chip on the card. In reality though, this would require a 20- or perhaps 40-MHz IIGS, so there'll have to be a significant breakthrough in accelerator technology before you'll want a faster FPE.

The Floating Point Engine is an agreeable, exciting way to empower your Apple II. It performs well and reliably. It's not a universal solution, however, because it's targeted for an audience whose work, in some way, relies on mathematical calculations. That may include a small-business professional, a commercial

artist, a schoolteacher, or even a rocket scientist—all having math as a common denominator.

If you use the FPE in conjunction with a TransWarp GS manufactured before mid-May 1989, you'll have some compatibility problems, but there's an upgrade available from Applied Engineering. Some owners of Micol Advanced BASIC will also need an update.

The FPE's manual is disappointing. Installing the card is straightforward, so that shouldn't give you a problem. But the section of the manual containing technical information is inadequate. This works to the detriment of intermediate programmers, who with better guidance could squeeze as much from FPE as the most advanced software designers.

The Floating Point Engine is a solid piece of work that deserves to become a standard, and Innovative Systems is an energetic young company. I recommend Floating Point Engine without reservation.

**Joe Abernathy**  
Houston, TX

## JOSHUA'S READING MACHINE

**COMPU-TEACH,**  
78 Olive Street, New Haven, CT 06511,  
(800) 44-TEACH, (203) 777-7738

Reading-education program;  
128K Apple IIe, IIc, IIGS; \$39.95

Rating: ♦ ♦ ♦

One of the best ways to encourage young children to read is to open up a book and read stories with them. Kids will look intently at the pictures while they listen to the story unfold. In the process of listening and looking, they'll associate words and ideas with the images they see. The more you read to them, the stronger their skills become. Before you know it, they'll be reading stories to you.

### RHYMING AND READING

For a change of pace, move from your favorite reading chair to your computer, and relax with Joshua the giraffe as you help youngsters learn how to read. Joshua's Reading Machine encourages kids aged 4-7 to practice with the traditional *Mother Goose Rhymes*, *Children's Songs*, and *Aesop's Fables*.

Each reading category presents you with several familiar titles. Rhymes offers 13 selections

**Ribbon Land**  
THE BEST FOR "MUCH" LESS

**1-800-221-4892**  
PA HOTLINE 215-524-9760

### RIBBON SPECIALS

APPLE IW I & II	2.50
APPLE IW I & II (ECHO DATA BRANO)	4.00
APPLE IW II 4-COLOR	5.75
APPLE IW LQ	12.00
APPLE IW LQ 4-COLOR	16.50
EPSON LQ500/800/850	3.50
EPSON LQ1000/1050	3.75
EPSON LX80/86/90/HOMEWRITER 10	2.25
EPSON MX.FX.RX 80/85	2.50
EPSON MX.FX.RX 100/185/286	3.75
OKIDATA 120/182/192	3.00
OKIDATA 82/83/92/93	2.00
PAN.KX-P 1080/1090/1091/1092	3.25
PAN.1080/1090 WITH INKING BUTTON	4.75
PAN.KX-P 1181/1191	4.25
PAN.KX-P 1124	5.25
STAR NX1000	4.00
STAR NX1000 4-COLOR	8.00

**WE WILL BEAT ANY ADVERTISED PRICE IN THIS ISSUE FOR RIBBONS LISTED ABOVE\*\***

\*SUBJECT TO VERIFICATION • RIBBONS ABOVE ARE BLACK UNLESS NOTED •  
• 9 DIFFERENT COLORS AVAILABLE FOR MOST RIBBON TYPES. ADD \$1.00 EACH.

**RIBBONS ARE SOLD IN QUANTITIES OF 6/PACK**

### DISK SPECIALS

5.25" DS/DD(10/BX W/LABELS & SLEEVES)*	25¢EA
3.5" DS/DD(50/BX)	65¢EA

\*SUPPLIES ARE LIMITED • 5.25" DISKS ARE SOLD IN QUANTITIES OF 100 DISKS •

### ACCESSORY SPECIALS\*

NETWORX™ SURGE/RFI...8.95	6-OUTLET SURGE...	9.95
NETWORX™ AB,ABC,ABAB SWITCHBOXES/LOW AS		14.95
SUP-R-LIFE™ IMAGEWRITER DEDICATED RE-INKER...		39.95

\*SUPPLIES ARE LIMITED •

### MAKE YOUR OWN T-SHIRTS

#### T-SHIRT RIBBONS

APPLE IW I & II SINGLE COLOR	5.63
APPLE IW II 4-COLOR	10.29
EPSON LQ500/510/800/850/MX80	5.63

\* 4 COLORS: RED, BLUE, YELLOW, & BLACK • OTHER MODELS AVAILABLE •

#### T-SHIRT PAPER

PRINT 'N WEAR (FOR NON-LASER PRINTERS) 10 SHEETS/PK.	8.95
--	------

#### T-SHIRT PENS

BROAD TIP MARKER SETS (FOR FILLING IN)	13.00
FINE LINE MARKER SETS (FOR ENHANCING)	11.00

\* SETS INCLUDE 5 COLOR MARKERS: RED, BLUE, GREEN, ORANGE, & YELLOW •

### GREETING CARDS

<b>BRIGHT PAPER &amp; PRINT SHOP ENVELOPES</b>	
PAPER (100 SHEETS/PK-CHOICE OF 7 COLORS)	4.95
RAINBOW BRIGHT PACK (600 SHEETS/PK)	27.00
PRINT SHOP SIZE ENVELOPES (50/PK)	4.50

\* COLORS: RED, BLUE, GREEN, YELLOW, GOLD, HOT PINK, & WHITE •

\* RAINBOW BRIGHT PACK INCLUDES 100 OF EACH COLOR EXCEPT WHITE •

<b>PASTEL PAPER &amp; PRINT SHOP ENVELOPES</b>	
PAPER (100 SHEETS/PK-CHOICE OF 6 COLORS)	4.45
RAINBOW PASTEL PACK (600 SHEETS/PK)	24.00
PRINT SHOP SIZE ENVELOPES (50/PK)	4.50

\* COLORS: PINK, BABY BLUE, LT. GREEN, CANYON, IVORY, & LILAC •

\* RAINBOW PASTEL PACK INCLUDES 100 OF EACH COLOR •

### BANNERS

<b>BANNER PAPER &amp; MAILING/STORAGE TUBES</b>	
PAPER (45 FT. ROLL-PIN FEED W/O CROSS PERFS)...	8.95
BANNER TUBES (CLEAR PLASTIC-5/PK)	4.95

\* COLORS: PINK, BABY BLUE, LT. GREEN, CANYON, GOLD, GREEN, IVORY, & WHITE •

\* DESIGNS: CHRISTMAS, HALLOWEEN, PARTY, CONGRATULATIONS, & BIRTHDAY •

### CERTIFICATES/RESUMES

<b>PARCHMENT PAPER &amp; ENVELOPES</b>	
PAPER (100 SHEETS/PK-CHOICE OF 4 COLORS)	8.95
PRINT SHOP SIZE ENVELOPES (50/PK)	4.95
#10 BUSINESS SIZE ENVELOPES (50/PK)	7.95
CERTIFICATE SIZE ENVELOPES (25/PK)	7.95

\* COLORS: IVORY, GREY, TAN, & GOLD •

### MISC. ACCESSORIES

3.5" or 5.25" DISK DRIVE CLEANING KITS	2.99
CONTINUOUS DISK LABELS (100/PK) 5.25" or 3.5"	3.99
CONTINUOUS COMPUTER PAPER (1000 SHEETS/CTN)	9.99
DISK NOTCHER (5.25")	4.20
MOUSE PAD - BLUE OR GREY (9"X 8")	4.20
PRINT HEAD CLEANING KITS	7.77

\*ADDITIONAL \$4.00 SHIPPING CHARGE ON THIS ITEM

**Order Your FREE 20 Page Full Color RibbonLand Specialty Catalog Today!**

**S & H** • UPS GROUND-\$4/ORDER • US MAIL-\$6/ORDER • OTHERS CALL •  
**TERMS** • MASTERCARD, VISA, (AMEX ADD 5%) • SCHOOL PO'S ACCEPTED •

**RIBBONLAND • PO Box 506 • EXTON • PA • 19341**



# Never buy another ribbon! with MacInker™

over 100,000 sold

Each MacInker is shipped complete with free bottle of ink, reservoir cover and ink meter/dispenser



**Universal Cartridge MacInker \$68.50**      **Imagewriter or Epson MacInker \$42.00**

MacInker™, the original, automatic ribbon re-inker. The Imagewriter MacInker (mod 234IM) re-inks Imagewriter I/II black & single color cartridges. With the optional **Multicolor Adapter (mod M422, \$40.00)** your MacInker re-inks the multicolor Imagewriter II cartridges. The Universal MacInker also re-inks hundreds of different cartridge types (including the Imagewriter I and II (single and multicolor), and the Imagewriter LQ, (single and multicolor) with suitable adapters. Our exclusive, extra dark, dot matrix, lubricant ink yields a truly better than new print quality and helps extend printhead life. Many Customers use MacInker on brand new cartridges to enhance print crispness. New ink dispenser ensures precise ink metering. Average number of re-inkings/cartridge is 60-100. Use your MacInker to re-ink in 10 different colors: red, green, blue, yellow, purple, brown, orange, gold and silver. We have cartridges in these colors and use only high quality cloth, ink and cartridge mechanisms. With the optional Heat Transfer Adapter (available for the dedicated 234IM and the universal MacInker, \$35.00) you can re-ink Heat Transfer cartridges, print on cloth and make your own T-shirts. We have a complete range of accessories and other special inks. Our Customers include individuals, Computer Clubs, Fortune 500 Corporations, Schools, Colleges, Banks, the FAA, Airlines and many, many more. In 1982 we pioneered re-inking technology and are dedicated to its development.

**Imagewriter I/II MacInker (234IM) ...\$42.00**  
(for black or single color cartridges)  
**Multicolor Adapter (Imagwr II) .....\$40.00**  
**Heat Transfer Adapter .....\$35.00**

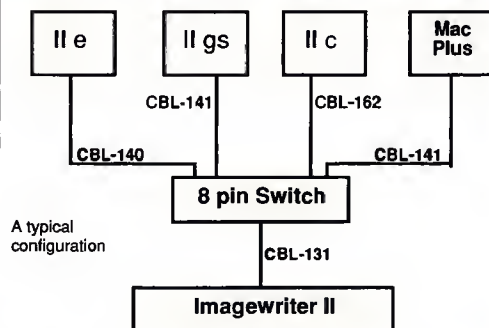
**Universal MacInker .....\$68.50**  
**Imagewriter LQ Adapter .....\$8.50**  
**Multicolor Adapter (Imagewr. II) ....\$40.00**  
**Multicolor Adapter (Imagewr. LQ) .40.00**  
**Optional Timer .....\$25.00**

**Extra bottle black ink (or color) .....\$3.00**  
**Colored ink kit\* .....\$8.00**  
(\* one bottle color ink + extra reservoir)  
**Pint black ink .....\$18.50**

**Imagewr. cartridges .....\$3.15/ea (min 6)**  
**Colored .....\$4.15/ea (min 2 per color)**  
**Imagewriter II multicolor .....\$10.00 (min 2)**  
**Imagewriter LQ .....\$14.00 (min 2)**  
**Imagewriter LQ multicolor...\$20.00 (min 2)**  
shipping .....\$4.50

## Data Switches mechanical or electronic

Connect up to 4 computers to one printer. We have a complete range of data switches, mechanical and electronic (autoswitching). **Free technical bulletin.**



**MS4-Mac8 4 pos. - 8 pin switch .....\$50.00**  
**Cables 6' .....\$16.00      Cables 12' .....\$26.00**  
**Autoswitch 2 input/1 output .....\$149.00**  
**Autoswitch 4 input/1 output .....\$169.00**

## Modems

100% Hayes compatible, 2 year warranty



Shipping 5.50

**Mercury 1200 baud .....\$99.00**  
**Mercury 2400 baud .....\$149.00**  
**9600 bps modem .....\$799.00**  
**Cable Computer to Modem. ....\$16.00**  
**CommWorks software .....\$60.00**  
All our Modems have full front panel lights, auto answer, dial, repeat, call progress monitoring, speaker control.

**Special Offer. Order for >\$60.00 and say "I saw it in Incider" and get a free mousepad. Order for >\$100.00 and get free key-beeper with flashlight combined (a \$15 value), or get a guaranteed, accurate, LCD electronic pedometer, jogging & step meter & calculator for only \$15.00 (a \$40 value).**

Satisfaction or 30 day refund on all products - Immediate shipment - Major credit cards

**Computer Friends, Inc. Order Toll Free 1-800-547-3303**

14250 NW Science Park Dr.  
Portland OR 97229

in Oregon (503)626-2291  
fax (503)643-5379 telex 4949559 CF

## REVIEWS

with such favorites as *Mary Had a Little Lamb*; *Hey Diddle Diddle*; *Hickory, Dickory, Dock*; and *Pat-a-Cake, Pat-a-Cake*. Songs includes ten traditional children's tunes, such as *The Farmer in the Dell*; *Pop! Goes the Weasel*; *Hush Little Baby*; and *Baa, Baa, Black Sheep*. Fables presents 14 stories, including *The Boy Who Cried Wolf*; *The Fox and the Crow*; *The Tortoise and the Hare*; and *The Country Mouse and the City Mouse*.

Children begin by selecting one of the three categories. Each topic then presents a menu of nine exercises, all designed to reinforce reading mastery. The exercises are sequential—each is slightly harder than the preceding one and builds on previously learned skills. Kids



may play all nine game-like activities with a single rhyme, song, or fable title, or they can do the exercises with different titles.

The advantage of sticking with a single title for all nine games is continuity. Children will grow accustomed to the target words and pictures, thereby facilitating the learning process. Once youngsters become familiar with all the rhymes, songs, fables, and activities, however, they may prefer to play different games with several titles.

## KEYS TO READING

Joshua's Reading Machine is a simple program to operate. Kids need to use only three keys to move from section to section. Hit the spacebar to highlight menu options, press Return to make selections, and tap Escape to exit the current activity. Adults may also customize the presentation by turning the sound on or off. Then can also cancel "automatic scrolling," so that the story won't scroll by unless they press the spacebar.

Kids probably won't be able to work entirely without adult supervision, because there are too many menus and titles to read. Grown-ups will have to assist nonreaders with some of the menu options.



# WIZARDRY • V

## HEART OF THE MAELSTROM

### LOSE YOURSELF IN A NEW GENERATION OF WIZARDRY!

#### The Legacy Continues ...

Despite the greatest magic of the ancient High Sages, great floods, earthquakes and famine again pervade the land of Llylgamyn. The great Orb of L'Kbreth, an artifact of remarkable power that has protected the city for generations, is powerless to halt the scourge.

But now, the Sages have discovered that the hidden reason is deeper and more frightening than the worst of these disasters. To save the very world as we know it, you, and your intrepid party must rush headlong into the ...

#### Heart of the Maelstrom

*Heart of the Maelstrom* is a complete revision of the Wizardry Gaming System, with more story and game depth than ever before. You may create your own party of adventurers, or use characters from other Wizardry scenarios. In this new world of Wizardry, you will find:

#### New Mazes

More than twice the size of previous scenarios, with larger monster pictures, magical pools, buried treasure, locked doors and much, much more.

#### New Abilities

Thief and Ninja characters that can hide, then ambush unsuspecting monsters. Spellcasters can conjure monsters to fight for your party.

#### New Spells

Over 40 brand new spells, 60 in all. A unique and totally new magic system.

#### New Combat System

Diabolical monsters with more deadly abilities than ever before, and an arsenal of ranged weapons and new combat situations will test your strategic powers as well as your strength.

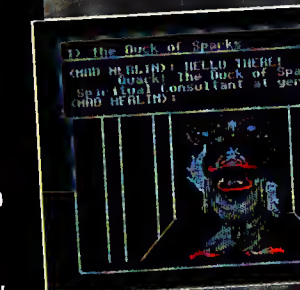
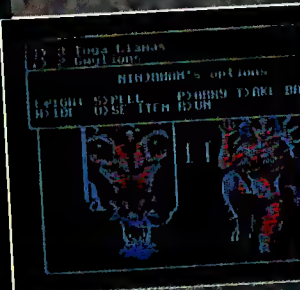
#### New Monster Encounters

Converse, buy, sell, trade, steal, or stand and fight in a dungeon filled with real characters.

*For the most exciting experience available  
in fantasy role-playing, enter  
Heart of the Maelstrom!*

## SIR-TECH

Sir-tech Software, Inc.  
P.O. Box 245, Ogdensburg, NY 13669  
(315) 393-6633



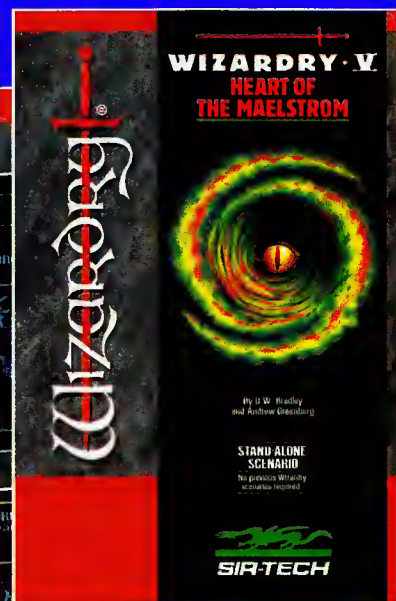
Screens from Apple II version of the game.  
Screens for other systems may vary.

### STAND-ALONE SCENARIO

Wizardry is a registered trademark of Sir-tech Software, Inc. Reg'd TM - Canada and Japan.  
Wizardry application software copyright © 1988 by Andrew Greenberg, Inc. and Sir-tech Software, Inc. All rights reserved.

# Wizardry

## PLAY IT TO THE HILT!



### Now available for:

- Apple II Series  
(5 1/4 inch only)
- MS-DOS  
machines  
(3 1/2 inch  
and 5 1/4 inch)

In the first activity, Picture Dictionary, kids review images and words for whatever rhyme, song, or fable they've selected. Pressing Return calls up a new graphic, and the spacebar toggles between the picture and the word. Reviewing the list helps the child associate words with pictures. Some youngsters may also begin to learn how to spell the target words. Contrary to what the publisher suggests, however, there's nothing very game-like about this activity.

Word Practice is Picture Dictionary's mirror-image activity. Here children first see a word taken from their chosen rhyme, song, or fable. The goal of the exercise is to read the word before switching to the picture. Again, there's nothing very game-like about this activity.

Story with Pictures presents a child with a rhyme, song, or fable adults should read aloud. In every line, there's a picture substitute for a key word. Youngsters will recognize the graphics, because they're the same ones used in previous activities. This exercise encourages prereaders to name the picture and complete the lines.

The next activity, Rhyme (or Song or Fable), presents the full text of the reading selection. There are no pictures accompanying the presentation; children listen as adults read aloud. You can, of course, encourage youngsters who want to read on their own to do so.

## KEEP ON READING

In Guess the Next Picture, reading selections appear on screen one line at a time. Each line has a missing word, which youngsters must provide to complete the exercise. If they need a hint, kids can press the spacebar to call up a picture of the missing word.

Pick a Picture asks children to determine whether the picture appearing in a line of rhyme, fable, or story is correct. Before deciding, children may cycle through a list of choices to search for the right picture. Correct answers receive positive audio reinforcement, and the name of the graphic appears on screen. After three incorrect attempts, the program provides the answer.

Pick a Word is very similar to the preceding activity, except that children practice with

missing words instead of pictures. The rhyme, fable, or song appears one line at a time. Each line contains a randomly selected word that may or may not be correct. If children decide that the suggested word doesn't fit, they can cycle through a list of words until they find the right one. If they choose the correct answer, they'll hear positive audio reinforcement and the word changes to its picture form.

Kids playing See a Picture, Type a Word have to type in the word for each picture that appears on screen. Correct spelling counts here, as the program doesn't recognize phonetic substitutions. Because many schools teach youngsters to use "inventive" spelling—a technique that focuses on ideas rather than correct spelling—the program's highly structured spelling requirements could frustrate youngsters who can name the word, but can't spell it correctly.

The final activity, Fill in the Word, requires that kids type in a missing word without any picture prompts. If the child enters the correct word, he or she hears musical reinforcement, and the word appears in its proper place in the rhyme, song, or fable. After three incorrect attempts, the program gives the answer. Again, this structured reliance on precise spelling might frustrate children who know the right answer, but lack the spelling skills.

## A LITTLE OLD

The Apple II version of Joshua's Reading Machine isn't copy-protected. It comes on two double-sided 5¼-inch disks. The program operates more smoothly in a two-drive system, which cuts down on disk swapping. If you have a 3½-inch drive, you should copy all files to a single 3½-inch disk to eliminate disk swapping entirely.

The original 1984 version of Joshua's Reading Machine came out for the IBM PC as three separate modules, each under a different title. The current Apple II product (copyright 1988), combines the three modules with some changes.

Overall, however, Joshua tends to show its age. The graphics are simple and repetitive, and lack the detail we've grown accustomed to seeing on screen. Children may lose interest in the highly structured activities, which leave little room for open-ended exploration. Joshua the giraffe, who served well in his day, may now be growing a little old. □

**Carol S. Holzberg, Ph.D.**  
Shutesbury, MA

## You probably already know that Computers Need Maintenance!

But did you know that with **Intelligent Tools** your computer can maintain and diagnose itself?



## MASTER DIAGNOSTICS™

Master Diagnostics provides all of the tools and knowhow necessary so that *anyone* can do monthly maintenance duties. Calibrating disk drive speed, cleaning drive heads, checking track alignment or just adjusting your monitor to peak clarity is a snap.

In addition to the maintenance routines, extensive diagnostic procedures are available at the touch of a key. With our new diagnostic construction set; you can create peripheral diagnostics for any device card. Problems are diagnosed down to the chip level and tests will report: *what's right, what's wrong, what to do and how to do it.* Not just pass-fail type exams!

The user manual is easy to understand and is packed with money saving U-DO-IT information. The Drive Analyzer tests and calibration routines alone will pay for Master Diagnostics after using it just once.

### Expert Opinions

Nibble magazine says, "This program should be in the library of every Apple user". Howard Sams Tech Manual, Apple Orchard, InCider Popular Computing, and the Apple II Review have all awarded Master Diagnostics with triple AAA ratings. *Consumers Guide* chose Master Diagnostics as one of the best programs for 1985. Used by Apple service centers world-wide.

WHEN ORDERING SPECIFY:  
version: II+, IIe or IIc

Master Diagnostics - \$75.00 r 6 i

Drive Analyzer alone - \$39.95  
(Included with MD)

Visa, MC, COD, School PO's

Call Free 1-800-835-2246

Apple Diagnostics  
Since 1979

**NIKROM**

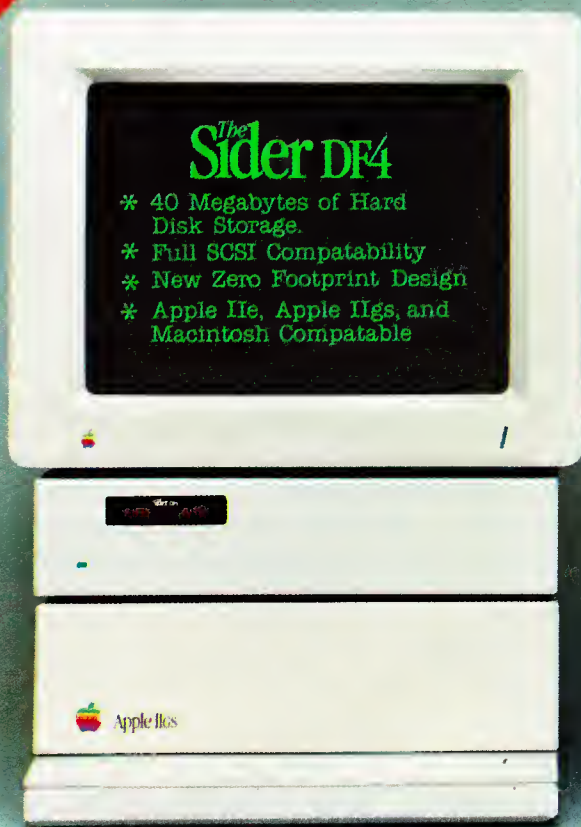
Technical Products, Inc.

176 Fort Pond Road ♦ Shirley, MA. 01464

Upgrades - return  
diskette and \$20.00



Christmas  
Special  
D2 \$399.00



## The SIDER just got SMALLER and TWELVE TIMES FASTER

First Class Peripherals now offers you 3 new solutions to end your floppy shuffle nightmares.

Available in 20, 40, or 70 megabytes, the Sider now features a smart looking cabinet design which is lighter and more compact than ever before. Esthetically appealing the New Sider models provide more desktop space with their unique zero footprint design.

Resting comfortably beneath your GS monitor or your Macintosh, the quality look is matched by the highest quality components and the latest in hard-disk technology. The new DF-series SIDERS offer a high performance 3½" drive which operates at nearly 3 times faster than other drives available. Adding our new DMA SCSI card will allow your Sider to operate at an incredible Twelve (12) times faster.

Although you may use Apple's SCSI card, your data transfer rates are improved by over 15% when using the SIDER DMA SCSI card.

The New Sider DF2 is a 20 megabyte hard-drive that will support Prodos, Dos 3.3 CPM, Pascal and GS/OS or can be ordered to support only ProDos & GS/OS. The New DF4 and DF7 are designed to support Prodos and includes utilities that will automatically load GS/OS, ProSel and RAM BASED driver software that will maximize the performance of GS/OS.

If you already own a SIDER, you can achieve the same high performance ratings by simply updating your system with a new SIDER DMA SCSI card and software. All SIDER products are backed by a one year warranty, a dedicated tech-support hotline and the best upgrade and trade-in program in the industry.

Order Today! The new DF2\*, DF4 and DF7 are available for your Apple IIe, Apple IIgs, Macintosh and Laser Computers by calling (800) 982-3232, in California (408) 980-0200. Or send Check or money order to First Class Peripherals, Mastercard, Visa and American Express are Welcome. California and Nevada residents add applicable sales tax. Include \$15 postage and handling

## FIRST CLASS

P E R I P H E R A L S

2875 Northwestern Parkway, Santa Clara, CA 95051

Call (800) 982-3232 From California and  
Canada call (408) 980-0200

D2*	20 megabyte hard-disk subsystem-multi o/s support.....	\$549	SALE PRICE	\$465
DF2*	20 megabyte compact hard disk-prodos Only.....	\$595	SALE PRICE	\$505
M/S-DF2*	20 megabyte compact hard disk -multi o/s support..	\$595	SALE PRICE	\$505
D4T	40 megabyte hard-disk subsystem-prodos Only.....	\$849	SALE PRICE	\$720
M/S-D4T*	40 megabyte hard disk subsystem-multi o/s support.	\$849	SALE PRICE	\$720
DF4	40 megabyte compact hard-disk subsystem -prodos Only	\$895	SALE PRICE	\$760
D7T	70 megabyte hard-disk subsystem-prodos Only.....	\$949	SALE PRICE	\$805
DF7	70 MB compact hard-disk subsystem-prodos Only.....	\$995	SALE PRICE	\$845
D9	90 megabyte hard-disk subsystem-prodos Only.....	\$1395	SALE PRICE	\$1185
C96	90 megabyte hard-disk & 60 megabyte tape subsystem prodos Only.....	\$1995	SALE PRICE	\$1695
DMA-SCSI	DMA SCSI card for Sider hard drives.....	\$150	SALE PRICE	\$125

\*Features a 5¼" SASI drive and is not Macintosh compatible.

\*Actual performance may vary depending on computer type and configuration.

\*Product names are the registered trademarks of their respective holders.



## LEARNING CURVE

**W**e're nearing the end of the time for talk. We don't need to wait for more new technology; we don't need any more academic research.

# LOOKING AHEAD

By **DAVID D. THORNBURG, Ph.D.**

FROM THE STANDPOINT OF EDUCATIONAL technology, the '90s aren't going to start out very strongly. For example, most classrooms still have seats aligned in straight rows facing a blackboard that dominates the front of the room. Teachers still instruct primarily through lectures and books, even though video and audio technologies are increasingly available as alternative ways of exploring knowledge.

The sense that learning is a closed activity within the classroom is so strong that most teachers don't even have telephones with which they can call local libraries or other information sources during the day.

School activities are still largely structured around fixed-length periods, punctuated by the raucous sound of the bell at 40-minute intervals. Students are usually grouped by age instead of learning style or degree of intellectual development, even though research has shown that age isn't the best basis for establishing academic preparedness.

Fortunately, there are some schools, mostly in small communities, where students of various ages are grouped together and allowed to help each other. Subjects are integrated, not split into separate fields as though there were no relationship among them. But these schools are under fire for not conforming.

### COMING OF AGE OR BACK TO THE FUTURE?

At this point, many of you are probably nodding your heads emphatically and saying, "Yes, that picture of the typical classroom is all too accurate." By the way, did I mention that I was taking it from a description of the schools of the 1890s, not the 1990s?

If you couldn't tell, I can't blame you. Considering the changes that have taken place in industry and in our personal lives in the past 100 years, the current structure of our educational system is an embarrassment.

When Edison invented the motion picture in

1894, he expected that it would revolutionize education. And if you look at today's classrooms, his invention of the phonograph in 1877 and Bell's invention of the telephone in 1876 may as well have gone unnoticed.

During one teachers' workshop I was conducting last year, I wanted to demonstrate a number of music tapes that have been shown to create a warm, engaging atmosphere in which learning can take place. The school not only didn't have a tape player, it had a policy that tape players weren't allowed on campus under any circumstances.

This neo-Luddite view of technology was being perpetuated in a year that marked the receipt of extraordinary closeup photos of Neptune and its moons from a spacecraft sailing billions of miles away from Earth.

### COMPUTER ILLITERACY

I've had it with those who say we must tread slowly in the integration of technology into the classroom. We've been in a rut for a hundred years, and it's time to move forward. We don't need a tow truck, we need dynamite.

Look at one current educational reality—700,000 dropouts a year. Lost income over their lifespan amounts to more than \$200 billion for every year we stay at that level. And that's not counting the cost of substance abuse, criminal activity, and the other tragedies of a disenfranchised population. Although there used to be a time when high-school graduation wasn't essential, those days have passed. Pick-and-shovel work is hard to come by in the information age.

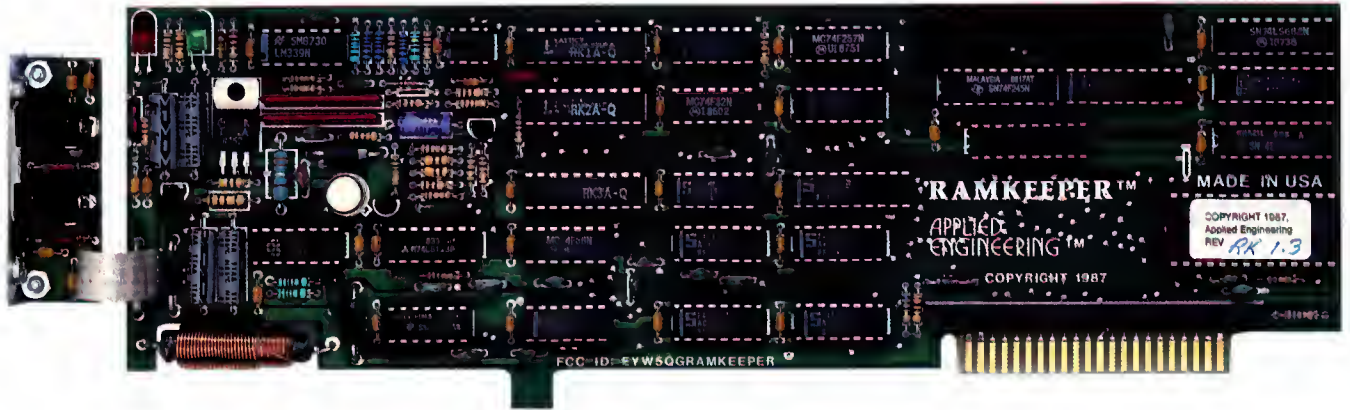
### SOFTWARE CURRICULUM

So what does that have to do with computers in the classroom? Anyone who has watched educational computing for the past decade knows that well-designed computer activities can help unlock barriers to learning in any student with enough motivation to turn on the power.

I used to get steamed up about drill-and-practice software as a misuse of technology. I've modified ►



# RamKeeper.™ If not the first board you add to your IIGS



## Certainly the second.

Chances are the first board you add to your computer will be for memory expansion. RamKeeper™ makes a smart second addition by performing *two important tasks*:

**First**, it gives you a sensible way to grow beyond the Apple memory expansion board that probably came with your IIGS. Apple's board has room for only 1 MEG of memory, and the new, integrated programs need a MEG just to boot.

RamKeeper lets you add a second memory board to your memory expansion slot with a special "back pocket" connector. That way, you can use your 1 MEG Apple board and still expand beyond its 1 MEG limit. And RamKeeper "sees" the two boards as one, so all you'll notice is the increased memory.

**Second**, RamKeeper creates battery-backed Ram and ROM. Safely store your system software, often-used application programs and most-needed files on RamKeeper-enabled ROM. It's like an internal, electronic hard disk (up to 16 MEG!), but five times faster than an ordinary hard disk.

Turn your computer on and see the finder in 13 seconds, instead of several minutes.

### **Safe storage**

RamKeeper powers up to two memory boards simultaneously, even when your computer is turned off. What's more, the stored programs are protected against power outages by the reliable Gel/Cell battery we include. Startup checksums are employed to verify that no data was lost



**RamKeeper is easy to install and stores programs in an "instant on" electronic hard disk.**

while the power was off. To protect the operating software against program crashes, we installed RamKeeper's controlling firmware in an EPROM.

You can even mix different brands of boards. For example, an Apple board with at least 512K of memory (based on 256K x 1 chips), and AE's (MEG-chip based) GS-RAM Plus™ or GS-RAM Ultra™ boards. And most all other brand and size combinations are also possible.

### **Advanced enough to be easy**

We designed RamKeeper to be easy to use. Instructions are clear and most functions are automatic. For example, there's no need to manually configure if you add a second board, it's done automatically. The configuring is linear, so there's less chance of a program crash. And *you* decide how much memory to devote to ROM and to RAM—all without affecting your stored files.

### **Compare features:**

RamKeeper includes a collection of important features like *disk caching* that

tremendously accelerates access time to the 3.5 drive, running most applications up to *seven times faster*.

Our *diagnostic utility* feature graphically detects the presence of bad or improperly-installed chips and tests for CAS before RAS chips.

And RamKeeper features Applied Engineering's meticulous craftsmanship, 5-year warranty, 15-day money-back guarantee\* and our American-made pride.

### **Use AppleWorks?**

AppleWorks users will find another bonus. Our AppleWorks enhancement package dramatically increases AppleWorks word processor lines from 7,250 to 22,500. Database records are increased from 6,350 to 22,500 and clipboard capacity climbs from 255 lines to 2,042.

**RamKeeper \$189**

### **Order today!**

To order or for more information, see your dealer or call (214) 241-6060 today, 9 am to 11 pm, 7 days. Or send check or money order to Applied Engineering, MasterCard, VISA and C.O.D. welcome. Texas residents add 7% sales tax. Add \$10 outside U.S.A.

**AE APPLIED ENGINEERING®**  
*The Apple enhancement experts.*  
A Division of AE Research Corporation.

(214) 241-6060

P.O. Box 5100, Carrollton, TX 75011

Prices subject to change without notice. Brands and product names are registered trademarks of their respective holders.

\*When purchased from Applied Engineering or thru a participating dealer.

my position: Good drill-and-practice software can help students by analyzing errors and offering personalized advice one-on-one. Most current drill programs don't do that, but writing that kind of software isn't hard. As consumers, we must stop letting software companies get away with publishing electronic workbooks.

## PUTTING IT ALL TOGETHER

Beyond drill, the computer can be a connection machine that lets students explore ideas in interrelated ways. The promise of hypermedia for the Apple II, as revealed through Techware's Tutor-Tech program and Roger Wagner's HyperStudio, is just now unfolding. (For more information, see "Curing the 8-Bit Blues," September 1989, p. 48; "HyperStudio: Hypertext for Your GS," Editors' Choice, August 1989, p. 108; "Does HyperStudio Stack Up?" September

1989, p. 44; and "In the Cards," Speaking of Graphics, October 1989, p. 94.)

The computer is already a system of navigation through a sea of knowledge. As I write this piece, I can check my spelling, find alternative words and phrases, look through my own library of quotations, dial up remote databases, and explore a vast world of information made useful—and I can do it all without ever leaving the keyboard.

## SCHOOLS OF THE FUTURE

It has been predicted that by the end of the twentieth century we will have microwave ovens in more than 25 percent of our automobiles. We haven't provided our students with the most important informational tool of the century, and we're talking about microwave ovens in cars. Who's running this show?

Every child should have unlimited personal access to a computer—not because it's "hot" technology, but because computers are as essential for the capture, evaluation, and distribution of information as paper and pencil were in the past.

## THE CLASS OF TOMORROW

There's no reason why Apple can't create a laptop IIc Plus-type machine and sell it at a price that would make it easy for parents and school administrators to purchase. And if we really wanted to control educational costs, we could just give computers away and pay for them out of the money we'd save from reducing the huge number of dropouts.

Education is probably the most conservative field on earth. Evolutionary forces work painfully slowly here; in the meantime, our society is running ahead at break-

neck speed. And when society moves faster than its support systems, evolution gives way to revolution.

We're nearing the end of the time for talk. We don't need to wait for more new technology; we don't need any more academic research. What we need is to get off our launching pads and bring schools into the 20th century before it, too, is over. □

DAVID THORNBURG IS INVOLVED IN THE CREATIVE USES OF COMPUTERS IN EDUCATION. PRINCIPALS OF SCHOOLS WITH STUDENTS IN GRADES K-6 ARE INVITED TO WRITE TO HIM REGARDING A SCHOOL DONATION PROGRAM HE HAS ESTABLISHED WITH ROYALTIES FROM THE AUDIO TAPE *SUNSHINE THOUGHTS*, PRODUCED BY THE THORNBURG CENTER FOR PROFESSIONAL DEVELOPMENT, P.O. Box 1317, LOS ALTOS, CA 94023-1317. ENCLOSE A SELF-ADDRESSED, STAMPED ENVELOPE IF YOU'D LIKE A PERSONAL REPLY.

*World of Flight*

Travel the globe with the best in simulation software; *Flight Simulator™* and *Jet™*. Discover the world with *Flight Controls I* and *Scenery Disk* supplements to our integrated flight line! Call (800) 637-4983 for our new brochure.

Flight Simulator, Jet, and Flight Controls I are trademarks of SubLOGIC Corp. IBM screens shown. Other computer versions may vary.

subLOGIC







# G O FIGURE

Apple users know there's always an easier way to get the job done. A shortcut here, an elegant twist there—that's what Hints & Techniques is all about.

It's an information swap for readers who want to share their programming pointers, hardware secrets, AppleWorks applications, and all kinds of other insights.

## INVESTMENT SUMMARY

By James W. Sims

**R**UTH WITKIN'S INTEREST EARNED CALCULATOR ("Cashing In," AppleWorks in Action, April 1989, p. 68) helps you analyze potential available income for your retirement. Retirement Investment Analysis (see the accompanying **Figure**) will help you determine the general dollar amount you need to achieve *before* retirement. You can also use the spreadsheet to plan your IRA or Keogh withdrawal schedule to maximize your tax benefits. The revised spreadsheet provides a new section, Total Investment Income Summary, which combines the expected income from Social Security and your company's pension.

The **Figure** shows the complete spreadsheet. The top section is from April's Interest Earned Calculator; the bottom section is what our new information will determine.

Create the new section according to the following summary:

**Long lines.** Enter a single line across row 40 in columns A through G: Place the cursor in cell A40 and type quotation marks. Hold down the minus-sign key until the sign reaches the right edge of G40, and hit Return.

Leave the cursor in cell A40, and copy the row to the clipboard: Press OA-C to start the Copy command, and type T to select *To clipboard*. Press Return to indicate A40...G40 as the source, then place the cursor in cell A43. Press OA-C, type F to select *From clipboard*, and hit Return to complete the copying procedure.

**Labels.** Before you type another word, center all your labels by pressing OA-V, then highlighting *Label format* and Return. Begin entering labels by placing the cursor in cell A39 and typing **TOTAL INCOME INVESTMENT SUMMARY**. Move the cursor to cell A41 and type **Age**, then proceed to B41 and type **Investment**. Continue typing the labels according to the **Figure**.

**Column width.** You'll need to widen column G, so move the cursor to

G40 and type OA-L to change the layout. Highlight *Columns*, then hit Return to indicate Column G. Now highlight *Column width* and press OA-Right Arrow several times. When you're finished, press Return and save the new format to disk.

### FORMULA 1

Formula 1 correlates the Age/Year references in the Investment Analysis section with those in the Income Summary section.

Cell location: A44

Description: +A13

Copy the formula in cells A44-A68: Press OA-C to start the Copy command and hit Return to confirm *Within worksheet*. Press Return again to highlight A44 as the source. Hit the period key to select A44 as the range, then use the down-arrow key to highlight A44-A68 as the destination, and press Return. Press R to confirm a *Relative* reference.

### FORMULA 2

Formula 2 is the "withdraw amounts" of cells E13-E37 in the Investment Analysis section.

Cell location: B44

Description: +E13

Follow the same procedure described above to copy the formula into cells B45-B68. Again hit R when AppleWorks asks whether this is a *Relative* reference.

### FORMULA 3

Formula 3 calculates your estimated Social Security income. We'll refer each year to the previous year's entry, so the spreadsheet will carry forward an increase in any year. For this example, copy the number that appears in C44 in the **Figure**. When you calculate your personal income summary, just substitute the amount that will apply to your situation.

Cell location: C45

Description: +C44

Copy the formula into cells C46-C68 according to the procedure we used for the first two formulas. Press R once for *Relative* reference.

### FORMULA 4

Formula 4 displays your Company Pension entries. Again, we'll enter each succeeding entry as relative to the previous year. To complete this example, use the number in D44 in the **Figure**.





# Prepare to be blown away by your Apple.™

*Phasor produces sound effects, music, and speech so striking,  
Applied Engineering feels you should be warned.*

Have a weak heart? Don't read any further. And by all means, *don't go near* an Apple IIe, II+ or IIGS equipped with the new Phasor sound synthesizer from Applied Engineering.

But those of you with the right stuff ... prepare yourself. Because the Phasor is like nothing you've heard before. It's a sound effects synthesizer that makes games explode into life. A music synthesizer that will stun you with 4 watts of stereophonic sound. And a speech synthesizer so realistic, it will send shivers up your spine.



*"I recommend Applied Engineering products wholeheartedly!"*

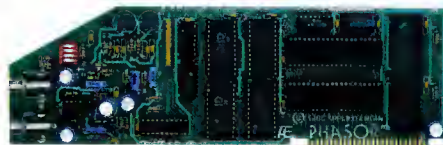
*Steve Wozniak, the creator  
of Apple Computer*

What's best, the Phasor works with more off-the-shelf software than any other sound card you can buy. So now all your favorite games — like Skyfox™, Under Fire™, Willy Byte™, Tactical Armor Command™, Maze Craze™, Zaxxon™ and Ultima IV™ — can have shattering sound effects. Educational packages like Music Construction Set™, Guitar Master™ and Music Star™ are also dramatically enhanced.

The Phasor has *four times* the output power and *twice* the accuracy of any other sound card — but of course, you can easily turn down the volume if you need a rest. The Phasor is equipped with 12 simultaneous sound channels, 4 white noise generators, and a voice channel expandable to 2 voices. Programs written for other sound cards, including Mockingboard™, ALF music card™, Synphonix™ and the Super Music Synthesizer™, sound even better with the Phasor. And you can control speech, pitch, volume and more with simple commands.

The Phasor comes with its own easy-to-use software (ProDOS based), including 30 ready-to-run, non-copy protected songs and sound effects along with a Music Editor, Sound Effects Editor and Text to Speech program. And of course, it carries our 15 day money back guarantee and five-year warranty.

Order a Phasor for your Apple today — and prepare to be blown away! Call (214) 241-6060 to order (9 a.m. to 11 p.m. 7 days). Or send check or money order for \$169 to:



**AE APPLIED ENGINEERING™**  
*The Apple enhancement experts.*

P.O. Box 5100, Carrollton, TX 75011 (214) 241-6060

**Figure. Retirement-analysis spreadsheet.**

File: RETIREMENT1

Page

RETIREMENT INVESTMENT ANALYSIS

Amount of Investment 85,000

Annual Interest Rate(%) 7.75

Times Compounded Annually 365

Effective Annual Yield 10.24%

Initial Withdrawal Amount 7,500

Estimated Annual Inflation(%) 4.00After 15 Yr 64,559

Year	Beginning Amount	Interest Earned	Ending Amount	Withdrawal Amount	Balance Remaining
1	85,000	8,704	93,704	7,500	86,204
2	86,204	8,827	95,031	7,500	87,531
3	87,531	8,932	96,463	8,112	88,351
4	88,351	9,016	97,367	8,436	88,931
5	88,931	9,076	97,706	8,774	88,932
6	88,932	9,106	98,039	9,125	88,914
7	88,914	9,105	98,013	9,490	88,528
8	88,528	9,065	97,593	9,869	87,724
9	87,724	8,983	96,707	10,264	86,442
10	86,442	8,851	95,294	10,675	84,619
11	84,619	8,665	93,284	11,102	82,182
12	82,182	8,415	90,597	11,546	79,051
13	79,051	8,095	87,146	12,008	75,138
14	75,138	7,694	82,832	12,488	70,344
15	70,344	7,203	77,547	12,988	64,559
16	64,559	6,611	71,170	13,507	57,663
17	57,663	5,934	63,597	14,047	49,550
18	49,550	5,071	54,591	14,609	39,981
19	39,981	4,054	44,075	15,194	28,882
20	28,882	2,957	31,839	15,801	16,038
21	16,038	1,642	17,680	16,433	1,246
22	1,246	128	1,374	1,374	0
23	0	0	0	0	0
24	0	0	0	0	0
25	0	0	0	0	0

**TOTAL INVESTMENT INCOME SUMMARY**

Age/Year	Investment Income	Social Security	Company Pension	Total Income	Inflation Estimate	Total Remaining
1	7,500	8,800	11,500	27,800	25,000	86,204
2	7,800	8,800	11,500	28,100	26,000	87,231
3	8,112	8,800	11,500	28,412	27,000	88,051
4	8,436	8,800	11,500	28,736	28,122	88,631
5	8,774	8,800	11,500	29,074	29,246	88,932
6	9,125	8,800	11,500	29,425	30,416	88,914
7	9,490	8,800	11,500	29,790	31,633	88,528
8	9,869	8,800	11,500	30,169	32,898	87,724
9	10,264	8,800	11,500	30,564	34,214	86,442
10	10,675	8,800	11,500	30,975	35,583	84,619
11	11,102	8,800	11,500	31,402	37,006	82,182
12	11,546	8,800	11,500	31,846	38,486	79,051
13	12,008	8,800	11,500	32,308	40,026	75,138
14	12,488	8,800	11,500	32,788	41,627	70,344
15	12,988	8,800	11,500	33,288	43,292	64,559
16	13,507	8,800	11,500	33,807	45,024	57,663
17	14,047	8,800	11,500	34,347	46,825	49,550
18	14,609	8,800	11,500	34,909	48,698	39,981
19	15,194	8,800	11,500	35,494	50,645	28,842
20	15,801	8,800	11,500	36,101	52,671	16,038
21	16,433	8,800	11,500	36,733	54,778	1,246
22	1,374	8,800	11,500	21,674	56,969	0
23	0	8,800	11,500	20,300	59,248	0
24	0	8,800	11,500	20,300	61,618	0
25	0	8,800	11,500	20,300	64,083	0

Cell location: D45

Description: +D44

Copy the formula into cells D46-D68 and type R once for *Relative* reference.

**NOW! NEW Release for the APPLE II (ProDOS) Computer:**

# WIN BIG MONEY!

The **COMPLETE Lottery TRACKER and WHEELER™**

As seen on the NBC Today Show

Now APPLE II Computer owners can enjoy the same popular software program for Pick-6 Lotto Games that has made **BIG MONEY WINNERS** of people from all over the United States! Just look at some of the features included in the **NEW VERSION 3.0 DELUXE UPGRADE** of The **COMPLETE Lottery TRACKER and WHEELER™**.

- Record and track up to 500 past winning numbers and dates
- Produce expert trend charts for HOT and DUE numbers
- Track as many State and International games as you like
- Produce statistics for all numbers played
- Check your bets for winning combinations
- Print Charts, stats, recorded numbers, and wheeling systems!

**Use Our Years of Experience with YOUR Computer Advantage!**

**Choose From The Worlds Most Popular Wheeling Systems!**

**SEARCHING HIGH and LOW MENU:** • NEW! SKIP and HIT CHART • NEW! Number SEQUENCE Chart • NEW! Number OCCURRENCE Chart • NEW! PLACE YOUR BETS MENU: • NEW! "ROLL YOUR OWN" Tickets Feature • NEW! Data Base TICKET SEARCH • WINNING NUMBERS BANK: • NEW! Last Winning Entry and Oate Display!

**When We Say Complete... WE MEAN COMPLETE!**

## ORDER NOW! Only \$39.95

plus \$2.00 S&H

ENTERTAINMENT-ON-LINE, Inc.  
P.O. Box 553, Dept. A  
Westboro, MA 01581 **NIPA**

MC/Visa Orders Only  
Call TOLL FREE 1-800-824-7888  
In Canada 1-800-544-2600

Order Direct or see Your Local Software Dealer.

1989 Entertainment-On-Line, Inc.

# GIVE DIVERSI-TUNE™

## THE GIFT OF SONG

Give your children the greatest gift of all this holiday season. Give them the joyful memory of your whole family all singing together! **Diversi-Tune** will supply the accompaniment on your Apple IIgs, complete with incredibly realistic piano, drums, bass, organ and many other sounds. What's more, the words to each song appear right on the screen complete with a bouncing ball, a la Mitch Miller.

*"It was just like magic seeing (and hearing) the family all together around the Apple, singing like meadowlarks.... Diversi-Tune's so delightfully engaging that any unopened presents will go begging."*  
— Washington Apple PI Journal.

AND **Diversi-Tune** is a full-featured MIDI recording/editing program that has the competition beaten HANDS DOWN. **Diversi-Tune** is the only IIgs program that can handle 32 MIDI channels at once, play up to 32 simultaneous IIgs instrument sounds, AND show each note on a piano display, ALL LIVE IN REAL TIME!

*"DIVERSI-Tune makes a GS sound like a compact-disc player... Teachers will like the keyboard diagrams showing proper finger placement/Because of Diversi-Tune, inCider's alive with the sound of Apple music. We hear that real musicians love it, too."*  
— inCider Editors' Choice/Top Ten Star.

**DIVERSI-TUNE... Program Disk... \$75.00**

Once you have **DIVERSI-TUNE**, you'll be able to play a whole variety of pre-recorded song disks including:

- #101 Nathan Page Live Jazz Piano... \$29.95
- #102 Gay Nineties... \$19.95
- #103 American Folk/Patriotic... \$19.95
- #104 Christmas Songs... \$19.95
- #105 Jewish Songs... \$19.95
- #106 Gospel Songs... \$19.95
- #107 Nathan Page Studio Jazz... \$29.95
- #108 Classical Organ Favorites... \$29.95
- #109 Classical Harpsichord Duets... \$29.95
- #110 Bill Basham - Rock Improv... \$29.95
- #111 Brent Bailey - Rock Improv... \$29.95
- #112 Childrens Songs - Volume 1... \$29.95

**ORDER TOLL FREE**

800-835-2246 ext. 127 (orders only)  
313-553-7822 (dealers and foreign orders)  
313-553-9460 (technical questions)

Price includes 1st class postage to US/Canada. Foreign orders add \$5 airmail fee. Return for full refund within 30 days if not satisfied. Visa/ MC (with exp. date), checks, P.O.'s accepted.

**DEALER INQUIRIES INVITED**

Diversified Software Research, Inc.  
34880 Bunker Hill  
Farmington Hills, MI 48331-3236 **dsr**



# Merry Diskmas from SD of A

Ho! Ho! Ho! Save Dough, Dough, Dough.

We have what you're looking for!

## Artworx

This game has graphics so realistic you'll think you can reach out & grab them! This is the real stuff w/ digitized graphics & voice. X-Rated.

**STRIP POKER 2 GS**

**SDA Discount Price \$25**

**STRIP POKER 64K (Not Digitized)**

**SDA Discount Price \$19**



Batman ..... \$19  
Heavy Barrel ..... \$23  
Ikan Warriors 128K ..... \$9.88  
Platoon 128K ..... \$9.88  
Robocop ..... \$23

### DAVIDSON

Algeblaster ..... \$29  
Grammar Gremlins ..... \$29  
Math Blaster Mystery ..... \$29  
Math Blaster Plus 128K ..... \$29  
Math & Me 128K ..... \$19  
Read 'N Roll 128K ..... \$29  
Reading & Me 128K ..... \$23  
Spell It ..... \$23  
Talking Math & Me GS ..... \$32  
Talking Reading & Me GS ..... \$32  
Word Attack Plus 128K ..... \$29

### DESIGNWARE

Designasaurus 128K ..... \$25  
Designasaurus GS ..... \$32  
Jigsaw GS ..... \$25

### ELECTRONIC ARTS

Bard's Tale 1 ..... \$9.88  
Bard's Tale 2 or 3 ..... \$32 Ea.  
Bard's Tale 1 GS ..... \$14  
Bard's Tale 2 GS ..... \$32  
Chessmaster 2100 ..... \$32  
Chuck Yeagers AFT 1.0 ..... \$9.88  
Cribbage/Gin King GS ..... \$39

Impossible Mission 2 ..... \$9.88  
Legend of Black Silver ..... \$19.88  
Print Magic 128K ..... \$24.88  
Project Neptune GS ..... \$19.88  
Sporting News Baseball 128K ..... \$19.88  
S.S. Baseball 128K ..... \$6.88  
S.S. Basketball 128K ..... \$6.88  
S.S. Football ..... \$6.88  
S.S. Soccer GS ..... \$6.88  
Sub Battle 64K or GS \$9.88 Ea.  
Technocop ..... \$19.88  
Winter Games  
64K or GS ..... \$9.88 Ea.  
World Games 128K ..... \$9.88  
World Games GS ..... \$9.88  
World Karate Champ ..... \$6.88

### FTL

Dungeon Master GS ..... \$25

### GAMESTAR

Champ Baseball 128K ..... \$9.88  
Champ Basketball GS ..... \$29  
Champ Basketball 128K ..... \$9.88  
Champ Football 128K ..... \$9.88

### GAMETEK

Double Dare ..... \$9.88  
Hollywood Squares 128K ..... \$9.88  
Super Password 128K ..... \$9.88

### HI-TECH EXPRESSIONS

Big Bird's Spc. Delivery ..... \$6.88

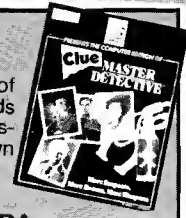
## Leisure Genius

Play your favorite game of criminal detection w/ friends or against the ultimate master of deduction, your own computer.

**CLUE MASTER DETECTIVE**

**List \$39.95**

**SDA Discount Price \$26**



### ACCOLADE

Bubble Ghost GS ..... \$25  
4th & Inches Football GS ..... \$25  
4th & Inches

Team Const GS ..... \$9.88

Hardball ..... \$9.88

Hardball GS ..... \$25

M. 18 Course Disk 2 GS ..... \$14

M. 18 Course

Disk 3 & 4 GS ..... \$23

Mean 18 Golf GS ..... \$25

Mini Putt GS ..... \$25

Test Drive 128K ..... \$23

T.D. 2: The Duel GS ..... \$29

T.D. 2: Europe Scen. GS ..... \$14

T.D. 2: Muscle Cars GS ..... \$14

T.D. 2: Calif. Scen. GS ..... \$14

T.D. 2: Super Cars GS ..... \$14

### ACTIVISION

Battle Chess GS ..... \$32

Black Jack Academy GS ..... \$25

Dragon Wars ..... \$32

Last Ninja 128K ..... \$9.88

Last Ninja GS ..... \$14

Might & Magic 1 or 2 ..... \$32

Music Studio 2.0 GS ..... \$44

Neuromancer 128K ..... \$19

Neuromancer GS ..... \$32

Paintworks Gold GS ..... \$44

Rampage 128K ..... \$23

Shanghai ..... \$9.88

Teleworks Plus GS ..... \$65

### ARTWORX

Bridge 6.0 ..... \$25

Kaleidokubes GS ..... \$19

Kaleidokubes ..... \$16

Strip Poker ..... \$19

Strip Poker 2 GS ..... \$25

S.P. Data Disks ..... \$32

S.P. Data Female #1 GS ..... Call

### BERKELEY

Geos 128K ..... \$44

### Geocalc

Geopublish ..... \$65

### BLUE LION

Ticket to Hollywood ..... \$25

Ticket to Wash. D.C. ..... \$29

### BRITANNICA FANFARE

Gnarly Golf GS ..... \$19

Grt. Western Shootout GS \$19

Laser Force GS ..... \$19

### BRODERBUND

Ancient Art of War ..... \$29

Ancient Art of War

at Sea 128K ..... \$29

Ancient Land of Y's GS ..... \$29

Bank St. Writer ..... \$49

Carmen S.D.-Europe 128K \$29

Carmen S.D.-U.S.A. ..... \$29

Carmen S.D.-World ..... \$25

Carmen S.D.-World GS ..... \$29

Dark Heart of Ukulul ..... \$32

Dazzle Draw 128K ..... \$39

Fantavision GS ..... \$39

Geometry GS ..... \$49

Print Shop (Enhanced) ..... \$29

P.S. Companion ..... \$23

Print Shop GS ..... \$39

P.S. Graphics #1 2 3 \$15 Ea.

P.S. Graphics Library

Party Edition GS ..... \$23

Sampler Edition GS ..... \$23

VCR Companion 128K ..... \$32

### CENTRAL POINT

Copy 2 128K or GS ..... \$25

### CINEMWARE

Defender of Crown GS ..... \$32

King of Chicago GS ..... \$16

Rocket Ranger GS ..... \$32

Sinbad GS ..... \$16

The Three Stooges GS ..... \$32

### DATA EAST

Bad Dudes ..... \$23

## ELECTRONIC ARTS

### STOCKING STUFFERS

Bard's Tale 1 • Deathlord  
Legacy of Ancients • Marble Madness  
Chuck Yeagers AFT 1.0  
Strike Fleet • Wasteland

**ONLY \$9.88 ea**

Death Lord ..... \$9.88  
Deluxe Paint II GS ..... \$65  
DM Asst. Vol. 1 or 2 ..... \$21 Ea.  
Earl Weaver Baseball ..... \$26  
Hunt For Red October ..... \$26  
Hunt For Red October GS ..... \$32  
Instant Music GS ..... \$14  
Keef the Thief GS ..... \$32  
Legacy of Ancients ..... \$9.88  
Life & Death GS ..... \$32  
M. Beacon Typing GS ..... \$32  
Madden Football ..... \$32  
Magic Candle ..... \$32  
Marble Madness 128K ..... \$9.88  
Marble Madness GS ..... \$14  
Music Const. Set GS ..... \$14  
Skate or Die GS ..... \$14  
Strike Fleet ..... \$9.88  
Wasteland ..... \$9.88  
World Tour Golf GS ..... \$14  
Zany Golf GS ..... \$26

### EPYX

Art & Film Director GS ..... \$39.88  
California Games GS ..... \$22.88  
California Games 128K ..... \$9.88  
Destroyer GS ..... \$6.88  
Final Assault GS ..... \$9.88  
Games: Summer 128K ..... \$6.88  
Games: Winter 128K ..... \$6.88  
Home Video Prod. 128K ..... \$24.88

Desk Power ..... \$9.88  
Ernie's Magic Shapes ..... \$6.88  
Fun House ..... \$9.88  
Muppet Adventure ..... \$9.88  
Muppet Print Kit ..... \$9.88  
Print Power ..... \$9.88  
Remote Control ..... \$8.88  
Ses. St. Print Kit ..... \$9.88  
Win. Lose or Draw ..... \$8.88

### INFOCOM

Battletech ..... \$32  
Hitchhikers Guide ..... \$9.88  
Journey ..... \$32  
King Arthur ..... \$25  
Leather Goddesses ..... \$9.88  
Mines of Titan ..... \$29  
Shogun ..... \$32  
Zork Trilogy ..... \$16  
Zork Zero ..... \$32

### LEARNING COMPANY

Math Rabbit ..... \$24  
Reader Rabbit GS ..... \$39  
Reader Rabbit ..... \$24  
Think Quick! ..... \$32  
Writer Rabbit ..... \$32

### LEISURE GENIUS

Clue ..... \$26  
Risk ..... \$26  
Scrabble ..... \$26

### MECA

Andrew Tobias: Managing Your Money 128K or GS ..... \$95

### MELBOURNE HOUSE

Elways Quarterback ..... \$19  
Magic Johnson B-Ball GS Call  
War in Middle Earth GS ..... \$32

### MICROPROSE

F-15 Strike Eagle ..... \$14  
Pirate 128K or GS ..... \$29 Ea.  
Silent Service 128K or GS ..... \$14

### MINDSCAPE

Balance of Power 128K ..... \$25  
Balance of Power 1990 GS ..... \$32  
Captain Blood GS ..... \$32  
De Ja Vu 1 or 2 GS ..... \$32  
Gauntlet GS ..... \$29  
Gauntlet 1 or 2 128K ..... \$25 Ea.  
Hostage GS ..... \$25  
Ind. Jones Temple Doom ..... \$23  
Indoor Sports GS ..... \$25  
Paperboy GS ..... \$25  
Superstar Soccer GS ..... \$25  
Uninvited GS ..... \$29

### ORIGIN

Knights of Legend ..... \$32  
Arkanoid 2: Revenge GS ..... \$23  
Omega ..... \$32  
Quest For Clues Book 2 ..... \$19  
Space Rogue ..... \$32  
Tangled Tales ..... \$19  
Times of Lore ..... \$25  
Ultima 4 or 5 ..... \$39 Ea.  
Ultima Trilogy ..... \$39  
Windwalker ..... Call

### POLARWARE

Dogs go to Heaven ..... \$25

### SHARE DATA

All New Family Feud ..... \$9.88  
Concentration 1 or 2 ..... \$9.88  
Jeopardy Jr. ..... \$9.88  
Sports Jeopardy ..... \$8.88  
Wheel of Fortune 3 128K ..... \$9.88  
Wipe Out ..... \$9.88

### SIERRA

Gold Rush GS ..... \$25  
King's Quest 1, 2, 3 or 4  
128K or GS ..... \$32 Ea.

Leisure Suit Larry GS ..... \$25

Leisure Suit Larry 128K ..... \$25

Manhunter N.Y. 128K ..... \$32

Manhunter N.Y. GS ..... \$32

Manhunter S.F. GS ..... Call

Mother Goose 128K ..... \$19

Mother Goose GS ..... \$19

Police Quest GS ..... \$32

Police Quest 128K ..... \$32

Silphed GS ..... \$23

Space Quest 128K ..... \$32  
Space Quest 2 (128K) ..... \$32  
Space Quest 1 or 2 GS \$32 Ea.

### SIR TECH

Heart of Maelstrom ..... \$32  
Return of Werdna ..... \$39  
Wizardry Trilogy ..... \$32

### SPRINGBOARD

Certificate Maker ..... \$24  
Newsroom ..... \$23  
N.R. Clip Art 1, 2, 3 ..... \$14

### SSI

Curse of Azure Bonds ..... \$32  
First Over Germany ..... \$32  
Overrun ..... \$26  
Phantasia 3 ..... \$26  
Pool of Radiance ..... \$29  
Typhoon of Steel ..... \$32  
War of the Lance ..... \$25

### SUBLOGIC

Fight Simulator 2 ..... \$32  
Hawaii Scenery ..... \$19  
Jet ..... \$26

### TAITO

Arkanoid ..... \$9.88  
Arkanoid 2: Revenge GS ..... \$23  
Bubble Bobble ..... \$19  
Qix ..... \$19  
Renegade ..... \$19  
Renegade GS ..... \$23

### THREE SIXTY

Dark Castle GS ..... \$29  
Warlock GS ..... \$24

### TIMESWORKS

Publish It! 2 128K / GS ..... \$84

### UNICORN

Kinderama GS ..... \$32

Math Wizard GS ..... \$29

### WEEKLY READER

Stickybear ABC's ..... \$24  
Stickybear Math  
1 or 2 ..... \$24 Ea.

Stickybear Reading ..... \$24

Talking Alphabet GS ..... \$32

### WORD PERFECT

Word Perfect 128K or GS ..... \$97

### ACCESSORIES

Animation Station ..... \$65  
Big Mouse Pad 8 1/2" x 11" ..... \$7  
Disk Case 5 1/4" or 3 1/2" ..... \$6.88 Ea.  
Drive Cleaner  
5 1/4" or 3 1/2" ..... \$6.88 Ea.  
Sony 3 1/2" DSD ..... \$16.90 Bx.  
Sony 5 1/4" DSD ..... \$69.90 Bx.  
Epyx 500 XJ Joystick ..... \$25  
Suncom Analog + Joystick ..... \$25

## Blue Lion

Have you ever wanted to visit the White House? Explore Capital Hill? Come face to face with a giant panda? Now you can!

**TICKET TO WASH. D.C.**

**List \$44.95**

**SDA Discount Price \$29**



**Speedy Delivery**

**Deep Discounts**

**Astronomical Selections**

If you can't find what you're looking for in our ad, call us.



Send check or money orders to:

P.O. Box 111327 - Dept. INC

Blawnox, PA 15238



USA/CANADA orders

**1-800-225-7638**

PA Orders 1-800-223-7784

Customer Service (412) 361-5291

Fax Order Line (412) 361-4545

- Free shipping on orders over \$100 in continental USA.
- No surcharge for VISA/MasterCard.
- Your card is not charged until we ship.
- Purchase orders accepted.

**Order Line Hours: Mon.-Thurs. 9:00 AM-9:00 PM, Fri. 9:00 AM-7:00 PM, Sat. 10:00 AM-4:00 PM Eastern Time**

\*Please Read The Following Ordering Terms & Conditions Carefully Before Placing Your Order. Orders with cashiers check or money order shipped immediately on in-stock items! Personal & Company checks, allow 3 weeks clearance. No C.O.D.s! Shipping: Continental U.S.A. - Orders under \$100 add \$3. free shipping on orders over \$100. AK, HI, FPO, APO-add \$5 on all orders. Canada & Puerto Rico add \$7.50 on all orders. Sorry, no other international orders accepted! PA residents add 6% sales tax on the total amount of order including shipping charges. CUSTOMER SERVICE HOURS: Mon.-Fri. 9 AM-5:30 PM Eastern Time. REASONS FOR CALLING CUSTOMER SERVICE—412-361-5291 (1) Status of order or back order (2) if any merchandise purchased within 60 days from SD of A is defective, please call for a return authorization number. We will not process a return without a return auth. #! Defective merchandise will be replaced with the same merchandise only. Other returns subject to a 20% restocking charge! After 60 days from your purchase date, please refer to the warranty included with the product purchased & return directly to the manufacturer. Customer service will not accept collect calls or calls on SD of A's. 800 # order lines! Prices & availability are subject to change! New titles are arriving daily! Please call for more information.

**MODEM OWNERS** You can order on-line from our Apple Shop via the CompuServe and GENie electronic malls.

**Software Discounters Of America**



## FORMULA 5

Formula 5 adds the Investment Income, Social Security, and Company Pension to produce a Total Income Summary.

Cell location: E44

Description: + B44 + C44 + D44

Copy the formula into cells E45-E68 and type **R** three times to indicate *Relative* references.

## FORMULA 6

Formula 6 sets up your initial desired income for the first year. Then it inflates that value each year by the amount you entered in your Estimated Inflation Rate. This will give you an estimate of how well your total income will keep up with inflation. Again use the number in cell F44 in the **Figure** to complete this example.

Cell location: F45

Description: + F44\*(1 + (D8/100))

Copy the formula into cells F46-F68 and press **R** once for *Relative* reference. Type **N** for a *No change* reference to D8.

## FORMULA 7

Formula 7 repeats the Balance Remaining column in the Investment Analysis section.

Cell location: G44

Description: + F13

Copy this last formula into cells G45-G68 and press **R** once for *Relative* reference.

Write to James W. Sims at 2340 Stuart Drive, Kingsport, TN 37664.

## QUICKIES

**Convert a Kensington Microware System Saver II for use with your GS. Remove the base plate; cut off the "hang" tabs and sand smooth. Using the base plate as a template, fashion a 1/2-inch-thick ethafoam gasket, leaving a lip of about 1/8 inch protruding from what used to be the System Saver's top edge. Next, cut a hole to let air enter the foam near the fan. Then re-attach the base plate and glue the foam onto it with contact cement. Finally, position the modified System Saver on the GS so that the protruding lip engages one of the cooling slots.**

—Tom Addicks  
Housatonic, MA

GOT A HINT OF YOUR OWN? *inCIDER* WOULD LIKE TO SEE IT. IF WE CAN USE IT IN HINTS & TECHNIQUES, WE'LL BUY IT FROM YOU. SEND YOUR TIP TO *inCIDER*, 80 ELM STREET, PETERBOROUGH, NH 03458.

### Ile KEYBOARD \$44.95

#### Apple Compatible Cards and Products



**SALE!**  
JE864  
Pictured

16K RAM Card (Language Card) - Expand from 48K to 64K.  
**JE860** For Apple II and II+ ..... **\$34.95**

Extended 80-Column Card - Doubles display & memory capacity.  
**JE864** For Apple IIe..... **\$39.95**

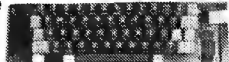
Disk Drive Controller Card - Capable of handling 2 drives.  
**JE875** For Apple II, II+ and IIe..... **\$34.95**

Parallel Printer Card - Compatible with most dot matrix printers.  
**JE880** For Apple II, II+ and IIe..... **\$39.95**

12" Monochrome Green Monitor - Cable Included.  
**AMON** For Apple II, II+, IIe and IIc..... **\$99.95**

No-Slot Clock - Plugs into your motherboard - 10 year warranty.  
**IB137** For Apple IIe, IIc and IIGS..... **\$39.95**

#### Apple II, II+ & IIe Replacement Keyboards



• All the same keys as the original II/II+ and IIe • Includes Cursor Control (AKB2E only) • Software Compatible  
**AKB** Apple II/II+ Replacement Keyboard **\$44.95**  
**AKB2E** Apple IIe Replacement Keyboard **\$44.95**

### APPLE DRIVES \$79.95

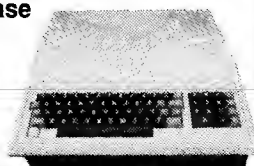
#### 5.25" Half Height Disk Drives for Apple II, II+, IIe & IIc

• Direct drive • 160K storage • 40 tracks • Quiet • Works with Apple & compatible controllers (JE875, see left) • Complete with connector

**JE1027** Disk Drive (for II, II+ and IIe) ..... **\$79.95**  
**JE1028** Disk Drive - no controller needed (for IIc) ..... **\$79.95**  
**AAM** Adapts standard Apple drives for use with IIc..... **\$4.95**

#### Apple II/II+ Compatible Enhanced Keyboard/Case

Features: • 68-key keyboard • 15-key numeric keypad • Predefined function keys • Direct connection to motherboard • Fits original Apple II/II+ motherboard and power supply



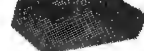
**AEKB...** **\$49.95**

#### Apple Cooling Fan For Apple II, II+ and IIe



• Line surge suppression • Two AC outlets • Snaps on the side  
**APF**..... **\$24.95**

#### Switching Power Supply For Apple II/ II+ /IIe



• 110V/220V • +5 @ 5A, +12 @ 2.5A, -5 @ 5A, -12 @ 5A  
**KHP4007**..... **\$44.95**

### JOYSTICK \$16.95

#### Apple II, II+ and IIe Compatible Joystick

• Auto-centered joystick with fine-tuning • Accurate and stable performance • Easy to operate • Long life variable resistor control • Durable construction • 5 foot cord



**AJS**..... **\$16.95**

#### ZIP CHIP — Increase the Speed of Your Apple —

• Apple II/II+ /IIe/IIc compatible • Easy to install • Replaces the microprocessor • Lifetime Warranty



**ZIP** 4MHz.. **\$139.95**  
**ZIP8** 8MHz.. **\$179.95**

#### Prometheus 2400 Baud Internal Modem

• Apple II/ II+ /IIe/IIGS • Hayes command compatible • Auto-dial/auto-answer • Includes II Talk communication & word processing software



**2400A** 2400/1200/300 Baud ..... **\$149.95**

#### Apple Cable Assemblies

**APC2** Apple to ImgWtr. or GS/Mac to Modem Cable **\$4.95**  
**APC3** Apple IIGS/Mac to ImgWtr. or LsrWtr. Cable... **\$4.95**  
**APC4** Apple IIGS/Mac Adapter Cable ..... **\$5.95**  
**MAC1** Apple II/II+ /IIe/IIGS to ImageWriter Cable ..... **\$5.95**  
**RCA10RCA** Composite Monitor/Audio RCA Cable ..... **\$1.95**

1355 SHOREWAY ROAD  
BELMONT, CALIFORNIA 94002  
24 HR. ORDER HOTLINE (415) 592-8097  
Telex #176043 FAX (415) 592-2503  
Technical Assistance FAX (415) 592-9075



Mail Order Electronics - Worldwide  
**Jameco**  
ELECTRONICS

15<sup>th</sup> ANNIVERSARY  
YEAR  
1974 - 1989

\$25.00 Minimum Order - U.S. Funds Only  
CA Residents Add 6%, 6.5% or 7% Sales Tax  
Shipping - Add 5% plus \$1.50 Insurance  
(May vary according to weight)  
Send \$2.00 Postage for a FREE 1990 Catalog  
Prices Subject to Change ©1989 Jameco Electronics  
APPLE, APPLE II, II+, IIe, IIc, IIGS and Macintosh are registered trademarks of APPLE Computer, Inc. 12/89

Jameco Also Carries a Wide Selection of IBM and Macintosh Compatible Products!



# The Secret of AppleWorks Success . . .

## Success with AppleWorks IV

- ▶ Annual Interest Calculation
- ▶ Retirement Budget Plan
- ▶ Business Statements
- ▶ Business Startup Expenses
- ▶ Résumé Layouts
- ▶ Stock Portfolio
- ▶ Job Search Employer Database
- ▶ Shopping Lists
- ▶ Résumé Cover Letters
- ▶ Investment Payout

**I**ntroducing the fourth in a popular series. Success with AppleWorks' ten time-saving templates will boost your productivity with the AppleWorks word processor, database manager, and spreadsheet. Ruth Witkin, *inCider's* AppleWorks in Action columnist, has created these templates exclusively for Success with AppleWorks IV.

"I use Success with AppleWorks Volumes I and II to teach my students AppleWorks. I also use it at home."

Ronald Jacobs, Laurel, MD

"With AppleWorks and *inCider's* Success with AppleWorks, I don't need any other software."

J. Miller, Fullerton, CA

"These templates have helped me manage my home finances, while teaching me how to use AppleWorks more effectively."

Nancy Ward, Friedens, PA

**YES!**

Send me the following for just \$29.97 each:

☐ Volume I ☐ Volume II ☐ Volume III ☐ Volume IV

☐ Send me all four Success with AppleWorks disks for just \$79.97—I save \$40 off the single volume price!

☐ Check enclosed ☐ MasterCard ☐ Visa ☐ American Express

Card # \_\_\_\_\_ Exp \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Price includes postage and handling. Foreign Air Mail, please add \$3.95 per order.

\*requires AppleWorks version 2.0 or higher

Mail to: **Success with AppleWorks**

IDG/Peterborough

80 Elm St., Peterborough, NH 03458

SC951

**ORDER  
TODAY!**

For Immediate Service  
CALL TOLL FREE

**1-800-343-0728**

or complete  
and mail coupon

**Volume I** Mail List, Checkbook, Price Quote, Loan, Quote Letter, Newsletter, Price/Volume, Budget, Sales Report, Expenses

**Volume II** Cash Flow, Breakeven, Net Worth, Menu, 3-Across Labels, Income, Car Loan, Rent or Buy, Cover Letter, Important Numbers

**Volume III** Car Costs, Retirement, Living Expenses, Credit Cards, Return-Address Labels, Handbook, Wine List, Taxes, Loan II, Travel Expenses

# READER SERVICE INDEX

## Reader Service

	Page
58 Abys Discount Software	138
286 Abracadabra	104
245 Advantage Computing	120
103 Alltech Electronics Co. Inc.	93
95 American Micro Research	47
* Applied Engineering	25, 50, 51, 61, 71, 79, 82, 83, 95, 101, 108, 109, 113, 116, 117, 127, 131
54 Applied Ingenuity	111
47 Applied Ingenuity	73
65 Az-Tech Computer Services	137
87 Bible Research Systems	138
151 Big Red Apple	43
66 Borg Industries	138
32 Britannica Software	CV4
* Broderbund Software	5
264 California Dreams	21
116 Canadian Computer Outlet	137
81 Casady & Green	4
8 CDA Computer Sales	16, 19
* Central Point Software	77
94 Choice Computer Products	138
* Claris Corporation	96, 97
154 Compu-Teach	6
* CompuCraft	138
124 CompuServe	52
109 Compshare	140
205 Computer Direct, Inc.	88, 89
252 Computer Enhancers	139
288 Computer Friends	122
* Computer Learning Foundation	118, 119
142 Computers Plus Company	137
134 Dayton Computer Supply	137

## Reader Service

	Page
108 Diversified Software	132
73 DMA Technologies	140
220 Educational Resources	22, 23
135 Entertainment Online	132
85 Fas-Track Computer Products	74
132 First Class Peripherals	125
61 GE Ridge Services	140
* Genie	75
* Golem Computers	30, 31
27 Gosselin Computer Services	141
* inCider	
Sub Ad	135
23 International Software Lib	142
163 Interplay	11
* Intuit	83
43 Island Computer Services	140
70 Island Computer Supply	141
199 Jameco Electronics	134
30 KAT	139
* Kensington Microwave	CV3
131 Kinson Products	29
175 Laser Computer Inc.	9
34 Little People Can Read	137
248 Memory Plus Distribution	105
4 Merritt Computer Products	138
55 National AW User Group	139
173 New Science Prospects	142
271 Nikrom	124
89 North Forty Enterprises	141
145 Origin Systems	65
42 Origin Systems	107
59 Perfect Solutions Software	137
77 PIE	139
84 Precision Data Products	139
* Preferred Computing	66, 67
105 Price Busters	114
128 Programs Plus	36, 39
269 Public Domain Exchange	20
155 Quality Computers	102, 103
136 Quality Computers	2, 3

## Reader Service

	Page
164 Quality Computers	136
7 Ramco Computer Supplies	139
117 Ribbonland	121
90 Roger Coats	44, 45
185 S.A. AuTeur Company	141
240 Sensible Software	12
293 Seven Hills Software Corp.	13
143 Silicon Express	129
218 Sir-Tech Software, Inc.	123
292 Softdisk	1
51 Softools	138
96 Softronics	141
127 SoftSpoken	142
270 Software Disc. of America	133
18 Sports Software Assoc.	140
233 Standard Peripherals	139
160 Strategic Simulations	115
92 Street Electronics	CV2
156 subLOGIC Corp.	128
104 Supra Corp.	33
110 Taito Software Inc.	41
11 Telemax	140
10 The Experts	140
141 The Learning Company	87
68 Thunderware	35
140 Timeworks	63
50 Tom Snyder Productions	98
192 Triad Software	42
231 Tulin Corp.	93
232 Unlimited Software	141
297 USA Micro	28
82 Victory Software	99
283 Virginia REAL Software	141
260 Zimco Int.	27

This index is provided as an additional service. The publisher does not assume liability for errors or omissions.

# Now for AppleWorks 3.0! **SUPERPATCH.** **DO-IT-YOURSELF APPLEWORKS.**

Q Labs announces SuperPatch 6.1, the world's most comprehensive customization program for AppleWorks 2.0, 2.1 and now, for AppleWorks 3.0!

**SuperPatch 6.1 installs over 50 patches on AppleWorks 3.0, and over 150 patches on AppleWorks 2.0 and 2.1.**

SuperPatch is menu driven, and simple to use. SuperPatch will also de-install alterations, enabling you to try various patches for as long as you like, and easily remove some or all of them later. Plus, SuperPatch modifications are compatible with your AppleWorks modifications.

**Here are a few of the patches available with SuperPatch.**

Time/Date Display  
Automatic Time/Date in Reports  
No Space Bar on Boot Up  
Error Tone Customization

Printer Modifications  
Change Cursor to any Mouse Character  
Cursor Blinker Rate Modification  
And Many, Many More!

## SuperPatch \$39.95

a product of Q Labs 313/331-0941

Available from: Quality Computers 1-800-443-6697  
Also available from: Roger Coats, Silicon Express or your favorite dealer



## AzTech Computer

**Computer/Printers**  
Laser 128 EX \$449  
Laser 190A \$225  
Fortis 1310A \$239

### Memory Expansion

GS-RAM Plus ok \$139  
GS-RAM Plus 1 Meg \$239  
GS-RAM Ultra 256K \$179  
GS-RAM Ultra 1 Meg \$299  
AE-RAM Express 256K \$199  
RamWorks III 256K \$149  
RamWorks III 1 Meg \$299

### Software

Publish It! 2 \$85  
AppleWorks 3.0 \$189  
Print Shop gs \$39  
Report Writer \$49  
Timeout Quickspell \$45  
GS Font Editor \$29  
Point-To-Point \$59  
ProTERM v2.1 \$79

### Hard Drives & Floppies

Vulcan 20 Hard Drive \$499  
Vulcan 40 Hard Drive \$619  
Vulcan 100 Hard Drive \$1299  
External 20 w/SCSI \$579  
External 60 w/SCSI \$759  
AMR 3.5" Drive \$189  
5.25" Drive Daisy-Chains \$99

Business Works \$279  
Quicken \$45  
On Balance \$45  
DB Master "Pro" \$189  
Omega \$32  
Space Rogue \$32  
Bad Dudes \$29  
Man Hunter \$32

### Accelerators

Transwarp gs \$289  
Transwarp IIe II+ \$139  
Zip Chip 8MHz \$159

Space Quest II \$32  
Star Wars \$32  
Wings of Fury \$29

### Telecommunications

DataLink 1200 bps \$139  
DataLink 2400 bps \$179  
Zoom 2400 bps \$139  
Zoom 1200 bps \$99

**More in Stock-Call!!!**  
4820 W. Thunderbird  
Glendale, AZ 85306

VISA-MC, & School Pkts accepted. No charge for UPS Ground; 2-Day Air 5% in-store prices may vary. C.O.D. add \$5. InCider-A+ 10/89

Circle 65 on Reader Service Card.

# MARKETPLACE

Marketplace Ads get results! You can place an ad in this attention-getting section at a very reasonable cost. Call Diane toll-free at

**800-441-4403**

for helpful advice and reservations. Start seeing your ad here next month.

## RIBBONS

**1-800-331-6841**

**1-513-252-1247**

**FAX 513-252-4429**

**Over 350 types**

**Volume Discounts Available**

**★ ★ Satisfaction Guaranteed ★ ★**

	BLACK	COLORS
APPLE IMAGEWRITER	2.60	3.60
APPLE 4-COLOR	—	7.95
DIABLO HT II M/S	2.25	—
EPSON LX-80/90	2.10	3.50
EPSON MX-FX 80	2.50	3.50
EPSON MX-FX 100	3.50	4.50
IBM PROPRINTER	3.50	5.95
NEC P1, 2, 6	4.50	—
OKIDATA 182-192	3.50	4.50
PANASONIC 1080	3.50	4.50
PANASONIC 1124	5.75	6.50
STAR NX-1000	3.25	5.50

### DAYTON COMPUTER SUPPLY

a division of Den-Sys Corp.

1220 Wayne Avenue, Dayton, Ohio 45410

EST.: 1979

TERMS: C.O.D. MC, VISA, DISCOVER

Circle 134 on Reader Service Card.

## For IIGS & IIe

**Transwarp for:GS \$289,IIe\$169**  
**GS RAM PLUS 1Meg \$278; 2 Meg \$399**

**1 Meg memory set for GS RAM.....\$120**  
**256K 150ns set for IIGS memory card\$49**  
**System Saver (Kensington) for IIGS.....\$65**  
**CH Mach III Joystick (Platinum) \$32**  
**Turbo Mouse Kensington ADB for IIGS\$109**

**If you are likely to switch to Mac, get an SCSI External Hard Drive for IIGS:**  
The following drives work perfect with Mac Plus, Mac SE, Mac IIcx as well as IIGS & SCSI II kit.  
**40Meg \$499, 60Meg \$549, 100Meg \$849**  
**Add \$149 for GS OS 5.0 formatable IIGS interface (I/F) kit**

Internal non-SCSI drives (Specify whether for IIGS or IIe)  
**AI's Inner Drive 20 Meg \$459, 40 M \$589**  
**AE's Vulcan 20Meg\$489, 40M\$639, 100M\$1299**  
**Imagewriter compatible Printers with cable:**  
**Fortis 1310AP (friction/pin feed).....\$199**  
**Fortis 2210AP (240cps wide carriage).....\$399**  
**20-pin Drive Adaptor for IIGS/IIc+.....\$39**  
**Grappler c/Mac/GS \$89, Grappler Plus ..\$89**  
**Appleworks GS \$195, AppleWorks3.0IIe\$179**

### HyperStudio IIGS \$79

**DB Master Version 5.....\$99**  
**DB Master Professional.....\$189**  
**6 Ribbons for Scribe Color or black\$24**  
**6 Ribbons for Imagewriter,Black.....\$24**  
**6 Ribbons for Imagewriter multicolor\$42**  
Circle Reader Service Card for a free catalog.

**Note 1:** Shipping \$5 per \$100 by surface in USA.  
Extra for other modes of shipment.  
**Note 2:** Prices subject to change w/o notice.  
**Note 3:** For Defective Merchandise, call in 10 days of receipt for Authorization. Refund/Replacement at our option.

**SCHOOL ORDERS WELCOME.**

**Computers Plus Company**  
2303 N. 44th St. #2, Phoenix AZ 85008  
**PH:602-955-1404**  
**FAX:602-840-3767**  
InCider November 1989 AD, Sent on 8/31/89.

Circle 142 on Reader Service Card.

## TAXCALC-89

### FAST - MENU DRIVEN - EASY

Built-in IRS worksheets & tax theory will save time & money for home preparer or professional. User enters data - TAXCALC-89 calculates best tax advantages, populates all related forms and even enters tax - FAST.

Features a pop-up calculator & data save.

Tax guide includes tax advice, tips & flow charts. Runs on entire Apple II family. Order now for Jan., '90.

**Only \$39.95 + 1/2 s&h**



Your TAXCALC-88 is super! Very easy to use. Took me ten minutes to do my taxes. Your pop-up calculator makes data entry easy. D. Mayer, Plattsburgh, NE

Calculates 1040 + A, B, C, D, E, SE, 2106, 2119, 2441, 3903, 4562.

**LASER 128 EX/2....\$485 3.5 Drive**

**LASER 128EX...\$399 5.25 Drive**

LASER authorized repair center & educational dealer.  
Monochrome monitor.....\$99  
External 3.5", 800K Drive.....\$179  
External 5.25" Drive for Laser & Apple.....\$95  
RGB Color Monitor + Green + Tilt & Swivel.....\$259  
RAM for Laser & Apple //gs: 256K-120ns set of 8 chips...\$48

**LASER 190A Printer...\$195**

Add 3% (\$5 min) for shipping. ImageWriter II Compatible  
**PERFECT SOLUTIONS SOFTWARE 1-800-780-7786**  
3701 Savoy Lane, Suite 106-D West Palm Beach, FL 33417

Circle 59 on Reader Service Card.

## Preschool Reading Skills Software Program for children ages 2 - 6 years

- ★ 20 fun interactive computer programs for teaching pre-primer and primer reading skills
- ★ Audio cassette tape for multi-sensory learning
- ★ Detailed user/instruction manual
- ★ Designed and developed by certified teachers and reading specialists
- ★ Available on ten 5.25" or two 3.5" diskettes for the Apple™ IIe, IIc, and IIGS computers (unprotected)

### \*\*\* Christmas Sale \*\*\*

Sale price \$79.95 (regularly \$99.95) + \$5.00 S/H†  
\$5.00 demo + \$1.50 S/H

To order, mail check or money order to:

**Little People Can Read**  
560 Soundview Suite C  
Homer, Alaska 99603

or call COLLECT (907) 235-7515  
(Toll Free 800 number coming soon!)

†Visa/Mastercard accepted (add \$3.50 surcharge)

Circle 34 on Reader Service Card.



## CANADIAN COMPUTER OUTLET



**LASER**

128 EX/2 \$599

**AE APPLIED ENGINEERING®**



CHINOOK

CT-20C \$799

CT-20 \$799

CT-30 \$999

**cordata**

BRIDGE

APPLE & IBM

COMPATIBLE

\$1799

WE CARRY A COMPLETE LINE OF APPLIED ENGINEERING, ORANGE MICRO AND OTHER BRAND NAME PRODUCTS.

**WRITE FOR YOUR \*\*FREE\*\* CATALOGUE.**

Educational Discounts Available Dealer Inquires Invited Canadian Inquiries Only

Showroom: 134 Randall St. Oakville, ONTARIO L6J-IP4

Mail Order Warehouse: Box 7081, Oakville, ONT.L6J 6J5

**Collect Calls For Orders Only! (416) 849-0737 (416) 849-0918 FAX**

Circle 116 on Reader Service Card.





## DISCOUNT SOFTWARE

11 S. Wright Avenue  
Fairborn, Ohio 45324

CALL TOLL FREE: 1-(800)-282-0333

CUSTOMER SERVICE  
& OHIO RESIDENTS

1-(513)-879-9699

### APPLE COMPATIBLE

Laser 128, Laser 128 EX, Laser 128 EX/2..... Call

#### ACCESSORIES & PERIPHERALS

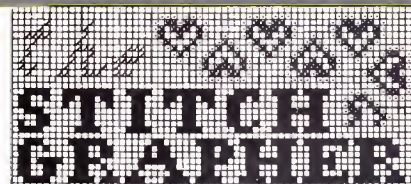
5 1/4" Disk Drive . . . . .	.95.00	Laser 128 Mouse . . . . .	.59.00
3 1/2" Disk Drive . . . . .	179.00	Laser 128 Cables . . . . .	16.95
2-Slot Expansion Box . . . . .	54.95	Laser Tech Ref. Manual . . . . .	22.95
Universal Disk Controller . . . . .	74.95	Laser Carrying Case . . . . .	54.95



CALL ON THESE AND OTHER PRODUCTS. WE CARRY A COMPLETE LINE OF SOFTWARE.  
10 a.m.-8 p.m. Monday-Thursday • 10 a.m.-6 p.m. Friday • 10 a.m. to 3 p.m. Saturday

SOFTWARE ONLY: Prepaid orders over \$50 receive free shipping via UPS in continental U.S. Please add \$3 orders under \$50. HARDWARE and all orders requiring shipment via U.S. Post Office are subject to additional freight charges. C.O.D. orders under \$100.00 are accepted-add \$5 charge card orders add \$2 service charge. Ohio residents add 6% sales tax. Personal checks require a three-week waiting period. All items subject to availability and price change. ALL RETURNS MUST BE ACCOMPANIED BY AN AUTHORIZATION NUMBER. FOR YOUR PROTECTION WE CHECK FOR CREDIT CARD FRAUD.

Circle 58 on Reader Service Card.



### DESIGN NEEDLECRAFT CHARTS

for Counted Cross-Stitch, Needlepoint, Latch Hook, Knitting, etc. using a revolutionary new computer program: *The Stitch Grapher*. Graphs up to 240 X 400 counts with up to 30 symbols may be generated & printed with any of 3 grid styles along with a color chart. A unique windowing feature allows the artist to move, copy, rotate, mirror image, save & re-use previous designs.

*The Stitch Grapher* is compatible with the 64K Apple II and 256K IBM-PC microcomputers. Disk plus 90 pg. manual - \$89.95. For complete information contact: **COMPUCRAFTS**, P.O. Box 326, Lincoln Ctr., MA 01773 or call (508) 263-8007.

Apple version supports only the Imagewriter printer with depicted grid style (dot matrix printers, other than the Imagewriter will require graphics capable interface card or separate support software). IBM version supports all IBM Graphics / Epson compatible printers.

LATEST  
VERSION!

**Full Featured BBS**  
for your Apple // computer  
**ONLY \$59.95!**

### The Magic City Micro v4.2

- Multiple message boards
- E-Mail, Program Libraries
- On-Line Games, more!

Written in AppleSoft BASIC; easily customized and a great way to learn programming! Enhanced by ModemWorks, a powerful communications language!

Modem Demo: (305) 666-1221, 300-2400

To order, send check or money order to:



**SoftTools, Inc. (since 1985)**  
8306 Mills Drive, Drawer 262  
Miami, Florida 33183 or call  
**(800) 283-3901**

Need to transfer AppleWorks database files to your IBM? Ask about our AppleWorks to Paradox conversion service!

Circle 51 on Reader Service Card.

## BIBLE RESEARCH SYSTEMS

Thousands of customers use our software and Bible text for KJV or NIV. Create your own concordances by searching for word and phrase combinations. Immediate display or print of any portion of the Bible. Also available: a Greek transliterator and topical concordances. For ProDos, Macintosh & MS-DOS.

### Bible Research Systems

2013 Wells Branch Pkwy. #304  
Austin, Texas 78728  
**(512) 251-7541 (Tech Support)**  
**(800) 423-1228**

Circle 87 on Reader Service Card.

**Protects while you type!**



- Remains in Place while you type.
  - Protects from dust, spills, smoke, ashes, staples.
  - Soft, Flexible, retains normal keyboard feel.
  - Washable, Durable High-Tech Polymer lasts years.
  - Hundreds of Models. PCs, laptops, clones.
  - Office • Home • Factory • Classroom • Laboratory
- List Price \$29.95. Please call or write for free color brochure. Dealer inquiries encouraged.

**SafeSkin**  
KEYBOARD PROTECTOR

Merritt Computer Products, Inc. 5565 Red Bird Center Drive  
Suite 150, Dallas, Texas 75234(214) 339-0753 • FAX (214) 339-1313  
In Canada call 1-800-663-1061

Circle 4 on Reader Service Card.

## CUT RIBBON COSTS



Re-ink your ribbons  
for just pennies  
with the

### E-ZEE INKER II

For crisp, black professional results that makes gray-faded printing a thing of the past

Choose from 3 Models  
Prices start at just \$39.50

**800-553-2404**

**B** Borg Industries, Ltd. In Iowa  
Janesville, IA 50647 319-987-2976

Circle 66 on Reader Service Card.

## Choice Computer Products

PO BOX 8432, CEDAR RAPIDS, IA 52408  
CUSTOMER SATISFACTION IS OUR #1 PRIORITY

AUTHORIZED **AE** APPLIED ENGINEERING™ DEALER  
FACTORY INSTALLED / WARRANTED RAM

PC TRANSPORTER . . . . .	\$374	SONIC BLASTER . . . . .	97
SINGLE TRANSDRIVE . . . . .	194	AUDIO ANIMATOR . . . . .	179
DUAL TRANSDRIVE . . . . .	292	PHASOR . . . . .	127
IIGS KIT . . . . .	37	DATALINK 1200 . . . . .	134
IEE KIT . . . . .	29	DATALINK 2400 . . . . .	179
RAMWORKS III 256K . . . . .	149	SERIAL PRO . . . . .	104
RAMFACTOR 256K . . . . .	187	PARALLEL PRO . . . . .	74
RAMCHARGER . . . . .	134	COLORLINK . . . . .	97
GS RAM 256K . . . . .	127	TIMEMASTER . . . . .	74
GS-RAM ULTRA 256K . . . . .	160	H.D. POWER SUPPLY . . . . .	59
GS RAM+ 1MEG . . . . .	284	AE DISK DRIVES . . . . .	112
RAMKEEPER . . . . .	142	POCKET ROCKET . . . . .	74
RAM EXPRESS 256K . . . . .	187	TRANSWARP . . . . .	127
RAM EXPRESS D-CLOCK . . . . .	44	VULCAN 20 . . . . .	\$524
TRANSWARP GS . . . . .	299	VULCAN 40 . . . . .	674

### OTHER FINE PRODUCTS

KENSINGTON SYSTEM SAVER IIGS . . . . .	\$ 76	SCSI INTERFACE . . . . .	\$125
APPLEWORKS GS . . . . .	229	CHINOOK 20MEG . . . . .	550
KENSINGTON SYSTEM SAVER IIE . . . . .	69	CHINOOK 40MEG . . . . .	738

For the Lowest Prices on all AE Products Call 319-396-2306 (9 am to 9 pm)

MasterCard, Visa, COD, P.O. & Checks Accepted Prices subject to change  
NO CREDIT CARD SURCHARGES-\$5.00 S&H PER ORDER (UPS Grnd.)

Circle 94 on Reader Service Card.



**ORANGE MICRO • BEAGLE BROS • APRICORN • THUNDERWARE • PANASONIC**

**Computer Products**

**Standard peripherals**

P.O. BOX 65187  
West Des Moines, IA 50265  
800-535-1707 • 515-225-7033

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY, STATE, ZIP CODE \_\_\_\_\_

**CALL OR SEND IN THIS COUPON FOR YOUR FREE CATALOG CONTAINING HUNDREDS OF COMPUTER PRODUCTS!**

**Supra 2400 Baud Modem \$129 w/MNP \$209**  
White laser Perf Paper 2500 Sheets \$28.50 1000/\$17.95  
GS RAM 1.5MB/w our guaranteed chips \$477 1MB \$367  
Sets of 120NS 256K chips \$339.95 **we will match any price in this magazine on memory chips.** System Saver GS \$75.95 II, +, E \$68.95 US ROBOTICS 9600 HST \$639 Must cables \$3.95 Shipping & H. \$117 & under add \$3.50 over \$117 add 3% of order. Alaska & Hawaii add 6% of total order w/\$6.50 min. Master Card & Visa accepted. C.O.D. Add \$4. Checks accepted with two week wait.

**US ROBOTICS • CH PRODUCTS • CURTIS • KENSINGTON • GRAVIS • SUPRA • LASER**

Circle 233 on Reader Service Card.

**NEW!**

**The AppleWorks Handbook Volume Two**

Published by the National AppleWorks Users Group

- Hundreds of AppleWorks tips, hints, and ideas.
- Over 500 pages and 200 articles, each a separate AppleWorks lesson.
- Useful techniques for novice, intermediate, and advanced users.
- Satisfaction guaranteed or your money back.
- Only \$27.95 plus \$3 shipping. (\$8 foreign).

Send check or VISA/MC to:  
National AppleWorks Users Group  
Box 87453  
Canton, MI 48187  
(313) 454-1115

**The 'How To' Book**

Circle 55 on Reader Service Card.

**GUARANTEED LOWEST PRICE ZIP CHIP — 4 MHz\***

**!! \$109.95 !!**

The Zip Chip accelerates the Apple II series (II, II+, IIe, IIc) plus compatibles up to 4-Times normal speed. It uses no slots as it replaces the CPU and is compatible with virtually all software. Accelerates all main memory and up to 2 Meg auxiliary memory. inCider's number 2 product of the year in 1988.

**MONEY BACK GUARANTEE** — Try it Risk-Free for 30 days with an ironclad, unconditional, no-questions-asked money back guarantee. If dissatisfied for any reason, return it to us for an immediate full cash refund.

**SHIPPING FROM STOCK** — We ship product from inventory on hand so there is no delay in receiving your Zip Chip.

**\*LOWEST PRICE GUARANTEE**

If you find a nationally advertised lower price for the 4 MHz Zip Chip, we will better it—guaranteed. Send ad with advertised price, publication and date for verification.

Check & money orders to: COMPUTER ENHANCERS, 24331 Muirlands, Ste. 4-456, El Toro, CA 92630. VISA, MASTERCARD & COD orders call toll-free: 800-728-1824. Add \$5.00 shipping, insurance & handling. CA residents add 6% sales tax.

Circle 252 on Reader Service Card.

**TIRED OF SWAPPING DISKS?**

**THEN ITS TIME TO GET A KAT HARD DRIVE!**

**20 Meg HARD DRIVE \$440.00**

KAT hard drives come with your choice of 2 external cases.

1. The SB holds 2 half-height drives, has a 65w power supply, 2 SCSI connectors, SCSI cable, and a cooling fan. 7"x5"x16"
2. The ZF fits under your monitor, has a 35w universal voltage power supply, external SCSI ID number switch, 2 SCSI connectors, SCSI cable, and a cooling fan. 10"x3"x12"

All KAT drives are custom made to your specifications including formatting, partitioning, system 5.0(GS) or 3.1 (IIe&c) and lots of demos and shareware.

20Meg	32Meg	48Meg	65Meg	85Meg
SB \$460.00	\$497.99	\$534.99	\$624.99	\$698.99
ZF \$440.99	\$477.99	\$514.99	\$604.99	\$678.99

**KAT 44Meg Removable Cartridge Drive SB or ZF**  
Includes one formatted cartridge and software \$899.99  
**Vulcan by AE 20M \$479.99 40M \$619.99 100M \$1299.99**  
**Transwarp by AE GS \$288.99 IIe \$118.99**  
**GS Juice Plus 1Meg Applied Ingenuity \$199.99**  
**GS-RAM Plus by AE 1Meg \$229.99**  
**RAM 256K \$4.99/1M \$12.49/1M SIMM \$109.99**  
**SafeSkin \$24.99 2400 Modem \$129.99**

**KAT also carries other fine products by AE AI, AMR, Beagle Brothers, Byte Works, Checkmate, Chinook, Claris, Kensington, Manzinita, Milliken, Orange Micro, Roger Wagner, Stone Edge, Thirdware, Zip.**  
*Call for those hard to find hardware, software items!*

**AUTHORIZED WE APPLIED ENGINEERING DEALER**  
**KAT**  
Call (913) 612-4611  
P.O. Box 335, Mission, KS 66201

Circle 30 on Reader Service Card.

**NEW LOWER PRICES**

**CARDS: LOWEST PRICES**

Extended 80 Column w/64K (IIe)	\$29.95
Disk controller (II + e)	29.95
16K RAM	29.95
Graphic printer card w/cable	29.95
IIe/ + Cooling fan w/surge protect.	29.95
Music card w/2 speakers (II, +)	29.95
IIe Numeric keypad	29.95
Z-80 CP/M Card	29.95
ALS Z-80B w/64K/CP/M 3.0	99.95
Super serial card	49.95
Hi-speed eprom burner	49.95
IIe Keyboard replacement	59.95
IIGS 1 Meg/Ram card	CALL
Disk Notcher	4.95
128K RAM(II, +)	99.95

1 year warranty. Add 5% shipping (minimum \$5); APO/Canada add \$2 extra. VISA/MC add 4% Minnesota residents add 6% sales tax.

**P.I.E.**  
P.O. Box 13509, MINNEAPOLIS, MN 55414  
612-545-1715 (11 am - 7 pm Mon-Fri)

**SCHOOL P.O. & DEALERS WELCOME**

Circle 77 on Reader Service Card.

**COLOR RIBBONS & PAPER**

Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Ribbons: price each	Black	Color	T-Shirt Ribbons
Apple Image, I & II	\$3.75	\$4.50	\$6.50
Apple Image, II 4-Color		\$7.50	\$10.50
Epson MX-80	\$3.75	\$4.50	\$6.75
Okidata 182/192	\$6.50	\$7.50	\$6.00
Panasonic KXP 1090	\$6.75	\$7.75	

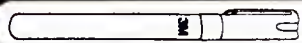
**T-Shirt (Heat Transfer Ribbons)**  
Colors: Black, Red, Blue, Green, Brown, Purple, Yellow

Color Paper	200 shts assorted	
Bright Pack:	9 1/2 x 11	\$11.95/pk
Pastel Pack:	9 1/2 x 11	\$11.95/pk
Color Certificate Paper:	100 sheets	\$12.00/pk
Color Banner Paper:	45 ft./roll	\$ 9.95/roll
Greeting Cards:	50 cards & 40 envelopes/pk	\$11.95/pk

Min. orders: \$25.00. Minimum S&H: \$3.50. Call for other ribbons and supplies. Price and spec. are subject to change w/o notice.

**RAMCO COMPUTER SUPPLIES**  
PO Box 475, Manteno, IL 60950 U.S.A.  
USA 800-522-6922 or 815-468-8081  
(Canada) 800-621-5444

Circle 7 on Reader Service Card.

**FREE Diskrite® Pen**  **\$4.95 Value**

**With your purchase of 3M diskettes from this AD**

**3M Diskette Sale**

3.5" DS/DD (1.0 MB) #12042	\$10.90/Box of 10
3.5" DS/HD (2.0 MB) #12513	\$24.00/Box of 10
5.25" DS/DD #00234	\$5.90/Box of 10
5.25" DS/HD #12100	\$10.90/Box of 10

**Order Today!**

**Order Toll Free: 1-800-258-0028**

**Free Catalog. Foreign Inquiries Invited.**  
Min. Order \$25. S&H: \$4.00, first 100 or fewer disks.  
\$3.00, each add'l 100 or fewer disks. MI resid. add 4% tax. COD: (add'l \$5.50) payment with cash, cert. check or money order. Prices Subject to Change.

**Precision Data Products™**  
P.O. Box 8367 • Grand Rapids, MI 49518  
616-452-3457 • 313-645-4980  
FAX: 616-452-4914

Circle 84 on Reader Service Card.



**GOOD THINGS COME IN SMALL PACKAGES!**

## COLORED PAPER

School Approved

1-800-322-2580  
In Michigan (313) 227-9401

VISA, MC, C.O.D.  
Minimum Order \$25.00  
S/H Add \$3.50

**A - BRITETONES - 9-1/2x11 - CLEAN EDGE**  
Red • Yellow • Green • Hot Pink • Blue • Gold

**PRISM PACK** 25 of each color.....\$12.95  
Single Color 50 Pack.....\$ 3.95  
Envelopes 25 Single Color.....\$ 2.50

**B - SOFTONES - 9-1/2x11 - CLEAN EDGE**  
Pink • Ivory • Green • Yellow • Blue • Lilac

**PRISM PACK** 25 of each color.....\$10.95  
Single Color 50 Pack.....\$ 3.25  
Envelopes 25 Single Color.....\$ 2.50

**C - GLITONES - 9-1/2x11 - CLEAN EDGE**  
Glo Pink • Glo Melon • Glo Lemon

**PRISM PACK** 25 of each color.....\$ 6.95  
Single Color 50 Pack.....\$ 4.95  
Envelopes 25 Single Color.....\$ 2.50

**D - CERTIFICATE PAPER - 9-1/2x11 - CLEAN EDGE**

**PARCHMENT PACK** 25 with Gold Metallic Seals.....\$ 4.95

Write for Our **FREE** Brochure Featuring  
**COLORED PAPER & SEASONAL PACKS**  
Continuous Labels, File & Post Cards, Disks,  
Classic Laid Stationery and Much More!

The Experts • PO BOX 928 • Brighton, MI 48116

Circle 10 on Reader Service Card.

## REMOVABLE HARD DISK STORAGE FOR THE APPLE II

### HARD DISK CARTRIDGE SYSTEMS

- Random Access With Unlimited Capacity
- 10MB to 50MB Capacities Available
- Proven Winchester Technology
- Maximum Data Security
- Image Back-up
- 100% Media Interchangeability
- 24 Month Warranty

### MEGABOARD HARD DISK CONTROLLER

- The Only ST506 Controller for the Apple IIe or IIgs
- Supports DOS, PRODOS, CPM 2.2 & UCSD Pascal
- Operating Systems Are Bootable
- IBM Interface Allows Use of Cheap IBM Disk Drives
- Adjustable Partitions
- IIe installs in Slot 1-7; IIgs in Slot 7

Megaboard, Software Utilities, Cable, and Manual	\$195.00
Model 100AS 10MB Removable Hard Disk System	\$560.00
Model 181ES 50MB Removable Hard Disk System	\$1,345.00

See your local Apple dealer or call 1-805-964-0733

**DMA TECHNOLOGIES, INC.**  
601 Pine Ave., Goleta, CA 93117  
Call 805-964-0733 for Information Fax Inquiries: 805-964-0734

Circle 73 on Reader Service Card.

## Computer Interface Products for Projection and Monitor Displays.

**Colormaster RGB Board**  
For //e, //+, 16 colors, text enhancement, 7 text colors, slot 7, \$109.

**Peacock RGB Module**  
for //c, C+, 16 colors, external module, text colors \$149.

**Telemaster CRGB-2000A**,  
Composite video to RGB adapter for Sharp and Kodak LCD projector, video monitors, projectors. \$149.

**Multivue Video Distribution Amplifier**  
For //GS, connects up to 4 RGB monitors, video & audio. \$199.

**MAC SE; PLUS. RGB Video Adapter**  
MCK-PLUS I \$115.

**AND MORE!**  
**Telemax, Inc.** Warrington, PA 18976  
(215) 343-3000

Circle 11 on Reader Service Card.

## For results you can predict.

9 out of 10 users will not get what they want from their computers.

Research shows many people do not feel they are getting what they want from their computers.

Your computer should help you be creative, get organized, make decisions, get the job done right.

**Don't miss out any longer.**

It's time to be the master of your machine. Circle CompuShare's Reader

Service Card number and join the users who get what they want.

**CompuShare has what you want.**

**CompuShare**  
For results you can predict  
(206) 776-9890

Circle 109 on Reader Service Card.

**WIN LOTTO MILLIONS\$!**

**LOTTO PICKER PLUS** Version 2 Plus

NOW FOR APPLE! LOTTO PICKER PLUS, the original lottery selection software, allows you to store winning Lotto, Keno, & Pick 3 numbers & choose between three modes of probability analysis (hot, due, unbiased) in order to give you the winning edge! Guaranteed to work for all lotteries. Bonus numbers are easily handled and our full-featured database editor gives you access to your files. We give you the PICKS — not a bunch of jumbled statistics! \$39.95 for 5.25" disk. \$44.95 for 3.5" (+ \$2.55 S/H). For all Apple II, Laser, MS-DOS, and Commodore 64/128. NY residents please add sales tax. NOT Copy-protected!

**CREDIT CARD ORDERS:**  
1-800-634-5463 ext. 293  
**GE RIDGE SERVICES**  
170 Broadway, Suite 201-1C  
New York, NY 10038 Info 718-317-1961

**THE RIDGE**

Circle 61 on Reader Service Card.

## TAX SOFTWARE AS LOW AS \$10

# TAXSMITH

Free 1990 Planner with order

Formerly known as TaxMaster

Tax software designed "just for you" with the TaxSmith family of tax software:

**TaxSmith.Quick** contains a Form 1040 and Schedule A & B, W-4, IRA, EIC calculations too. For simpler returns at a low, low price. Only \$10.00

**TaxSmith.Family** - Forms 1040, 2119, 2441, 3903, and Schedules A, B, D For a more complicated return but still at a budget price. Only \$20.00

**TaxSmith.Full** - Forms 1040, 2106, 2119, 2441, 3903, 4562, 6251, 8582, 8606, 8615, 8814, and Schedules A, B, C, D, E, R, SE For small businesses, rental property owners and other complex returns. Only \$50.00

**TaxSmith.Pro** - Contains Quick, Family, and Full versions as well as five other common combinations. For the professional tax preparer. Only \$75.00

Linked forms, easy to use, IRS acceptable output, much more! Our 5th year! Discounts on future upgrades! Money back guarantee!

**FREE 1990 Tax Planner with every order!**

Double Scorpio Software  
Island Computer Services  
3501 E. Yacht Drive  
Long Beach, NC 28465  
(919) 278-7444

ORDER TOLL-FREE  
**(800) 826-7146**

Circle 43 on Reader Service Card.

## Sports Scheduler

**FEATURES:**

- Any league or category with 4 to 22 teams.
- No limit on the number of categories that can be scheduled.
- Equal distribution of teams in playing slots.
- Up to 231 games per schedule.
- Dates calculated automatically.
- Schedules list data, day, time, location, game number and opponents for each game.
- Only minutes to schedule a league or category.

APPLE IIIE (128K) IIC, IIIS	99.95
IBM PC & Compatibles	+ 3.00 S&H
	\$102.95

Send check or money order to:  
**SPORTS SOFTWARE ASSOCIATES**  
75 Recreation Park Drive, Hingham, MA 02043  
(617) 749-7880

Circle 18 on Reader Service Card.



## FRENCH GERMAN ITALIAN EuroWorks™ v2.0 PORTUGUESE SPANISH

EuroWorks v2.0 runs 50% faster; installs in 10 minutes; reprints without reprocessing; allows boldface, underline, superscript, and subscript; adds Portuguese; and more!

Foreign word processor files may include every character on your American keyboard plus 13 French, 7 German, 10 Italian, 13 Portuguese, or 10 Spanish; just two sensible keystrokes per foreign character. Eight new symbols for English too: just three strokes each!

EuroWorks requires classic AppleWorks v2.0 or v2.1 USA and an Apple DMP, ImageWriter I or II, or Scriber; an MT85/86; or a Seikosha SP-1000AP printer. EuroWorks is compatible with, but does not require, the TimeOut™ series from Beagle Bros, Inc.

French...\$24 Spanish...\$24

**ALL FIVE...on one disk...\$39**

USA, Canada, Mexico postpaid; others add \$3

AppleWorks®, ImageWriter® by Apple Computer, Inc.

Check, MO, Net-30 School P.O., Visa, MC

**The S.A. AuTear Co: A66**

P.O. Box 7459 Beaverton, OR 97007

(503) 645-2306



Circle 185 on Reader Service Card.

## ATTENTION ROLE PLAYERS

Make these games easier using the following:

**CHARACTER EDITORS—\$19.95 each**  
Might and Magic, Deathlord, Ultima 3, Ultima 4, Ultima 5, Bard's Tale 1, Bard's Tale 2, Bard's Tale 3, Wasteland, Wizardry (1-3), Wizardry 4, Wizardry 5, Might and Magic 2, The Magic Candle, and Pool of Radiance.

**HINT BOOKS—\$9.95 each**

Might and Magic, Wizardry 1, Wizardry 2, Wizardry 3, Wizardry 4, Wizardry 5, Legacy of the Ancients.

**OTHER MIGHT AND MAGIC PRODUCTS**

Monster Editor (Change the monsters)—\$12.95

Construction Set (Make new scenarios)—\$24.95

Halbardon (New scenario for M&M 1)—\$19.95

Commodore and IBM versions also available.

Add \$3.00 for shipping and handling.

**GOSSELIN COMPUTER CONSULTANTS**

P.O. Box 1083

Brighton, MI 48116

(313) 229-2453



Circle 27 on Reader Service Card.

## 24 TERMINAL EMULATIONS

**Softerm 2**, an advanced communications package, includes 24 terminal emulations such as:

- DEC VT52, VT100, VT102
- IBM 3101-20 (block mode)
- HP 2622A • VIP7801, 7803
- DG D200 ... and many more.

**Guaranteed Compatibility!!**

**Supports** Script Files, Disk Capture, Softkeys, ProDos (floppy), DOS, CP/M, Pascal, & most vendor boards/modems.

Comes with Keyboard enhancer.

For the Apple II, II+, IIc, IIGS.

**\$195 MC-VISA-COD**

**SEIFTRONICS**

1-800-225-8590

**Call for information**

(719) 593-9540

(719) 548-1878 FAX

Telex 450236

Circle 96 on Reader Service Card.

## QUALITY AT A DISCOUNT

### HARD DISK & FLOPPY DRIVES:

AMR 3.5" 800K/GS/PC Transp Compat/Daisy Chain	199
5.25 Drive \$115 5.25 Daisy Chainable	145
Apple GS or UniDrive 3.5 \$319 Uni Controller	62
Chinook w/o SCSI, Auto Parking, Multi Lang., Slack;	
68ms: 20Mb 525 29ms/40Mb \$690 IIC	\$645
19ms: 80Mb 1299 105Mb	1375
Crate Technology w/card: 20 Mb \$599 40Mb	750
60Mb \$823 60Mb \$916 100Mb \$999 160Mb	1499
Cutting Edge w/o SCSI: 30Mb \$525 45Mb	599
Inner Drive 20Mb \$474 40Mb \$660 (specify 2e/GS)	
Sider 20Mb \$499 40Mb \$900 90Mb \$1520 w/Tape	2230
Vulcan Internal: 20Mb \$485 40Mb \$635 100Mb	1345
Multi Kache for 5.25 & 3.5: 256K \$285 1Mb	375
with Hard Drive/SCSI option 256K 352 1Mb	440
Fast Kache for Hard Drives 256K 240 1Mb	315

### APPLIED ENGINEERING:

Audio Animator (Due Nov) \$185	Sonic Blaster	99
Conservor \$87 EasyLink \$75	FastMath	143
DataLink Modem 1200 Bd \$135	2400 Bd	174

**RAM CHIP PRICES ARE FALLING FAST  
CALL US FOR THE LATEST PRICES**

Heavy Duty Power Supply 61	Phasor	124
GS Ram Plus: 1Mb 245 2Mb \$360 3Mb	475	
4Mb \$590 5Mb 705 6Mb 820 7Mb	1269	
Parallel Pro \$74 BufferPro 32K 81 Add'l 32K	4	
PC Transporter 374 Math Co-Processor	179	
Keyboard \$110 Installation Kit GS \$39 IIC+	31	
Single Drive \$199 Dual \$299 Xtra Dr	110	
RamCharger \$135 RamKeeper \$147 Slot Saver	32	
RamExpress 256K \$199 512K \$231 1Mb	295	
RamFactor 256K \$173 512K \$205 1Mb	269	
RamWorks III 256K 136 512K 168 1Mb	232	
TransWarp for GS 292 TransWarp 2e/2+	124	
Z Ram Ultra 1 256K 136 512K 168 280	111	
Z Ram Ultra 2 256K 188 512K 220 1Mb	284	
Z Ram Ultra 3 256K 248 512K 280 1Mb	344	
Ram Chips 256K (sets of 8): 80/100/120/150ms	32	
1Mb (sets of 8): 80 or 100ms \$100 120ms	110	

### LASER COMPUTERS:

Run Hard Drive + multiple 3.5/5.25" drives	
see hard drives: Ohio Kache's Multi Kache Card	
Laser 128 \$695 Laser 128EX	445
EX2 with 5.25" drive \$539 with 3.5" Dr	579
3.5" Drive + UDC Controller \$255 3.5" Dr	190
Mouse \$49 External Expan Bx \$59 TV Intfc	29

### PRINTERS, GRAPHICS & DESKTOP PUBLISHING

#### Panasonic Parallel Dot Matrix Printers:

1124 \$380 1180 \$199 1191 \$265 1524	625
1592 \$475 1595 \$515 3131 Daisy Whl	375
C/Mac/GS \$78 Grappler+ \$59 Grappler LQ	115
HotLink \$48 ProGrappler	80
ImageWriter Buffer 64K \$89 128K Buffer	99
FingerPrint + \$89 G+ \$59 SS \$55 GSI	79
II Print \$39 Image Perfect \$59 Printech	39
RC Slot Buster \$120 Speech Syn \$35 Parallel	16
Serial Printer \$12 Modem Option	24
Computer Eyes II B/W \$99 IIC Enhancement Software	23
GS/Color 190 GS Super HiRes Software	16
Kurta Tablet: IS/ADB 8.5x11 \$295 12x12	445
12x17 \$725 IS/ONE 8.5x11 \$395 12x12	485
12x17 \$740 Cordless Pen or Cursor	85
Koala Pad Plus \$79 DataPad: MousePad 8.5x11	12
Apple IIC Mouse \$125 IIC \$85 Trackball 2e/2e	65
Trackball ADB \$65 TurboMouse ADB \$115 A+ ADB	85
CH Mach: I \$19 II \$29 III \$32 IV Plus	61
AppleWorks 3.0 \$179 AppleWorks GS \$197 Draw+	62
Art & Film Dir \$55 Art Gallery \$55 Award Mkr	29
Certifi Maker \$24 Library \$19 Clip Art each	13
Dazzle Draw \$39 Deluxe Paint II \$65 Fantavision	39
Geo Publish \$64 GeoMouse \$37 Graphic Writer	99
Graphic Expr \$24 Graphic Edge \$50 Medley	144
Graphic Magic \$30 Merlin 816 \$68 Publish II	79
Paintworks Gold \$63 Paintworks+ \$40 Top Draw	61

### OTHER SOFTWARE

Designasaurus \$24 DigDug \$7 Dondra \$25 Echelon	37
Destroyer \$14 Dinosaurs \$29 Divers/Tune Empire	37
Downhill Chal \$23 F15 Strike Eagle \$27 Farnmaker	30
Factworks ea \$24 Final Assault \$14 Fish Scales	25
Flight Sim II \$35 Gauntlet \$25 GBA Championship	14
Fish \$24 General Mgr. \$21 GeoCalc \$49 GeoFile	55
Gertrudes Secrets \$25 GFL Championship \$10 Jaws	22
GS File \$61 GS Memory Test \$16 Guitar Wizard	22
Halls of Montezuma \$26 Hardball \$27 Hobbit	25
High Rollers \$11 Hinky Pinky \$37 Hollywood HJ	29
Home Video Pro \$35 Home Wks \$45 Hometown USA	30
Hostage \$27 Hunt Red Oct \$37 Hyper Studio	79
Iconix GS \$35 Ikari War \$22 Impossible Mission	14
Indoor Sports \$19 Infiltrator \$22 InfoMerge	59
Instant Music \$33 Instant Syn \$59 Jeopardy ea	10
J. Nicklas Golf \$34 Jig Saw \$25 Joker Poker	11
J. Madden Football \$33 Journey \$10 Karate Champ	7
Jet \$26 Kung Fu \$11 Karateka \$10 Kid Niki	23
Kids on Keys \$22 Kids Time II Kings Quest ea	31
King of Chicago \$32 LA Crackdown \$14 Last Ninja	24

**Turbo charge your 5.25", 3.5" or hard drive using Ohio Kache's Multi Kache, Multi Kache + SCSI, or Fast Kache SCSI. Speed Increase 10 to 50 times.**

Free illustrated catalog. Pay by check. Free Shipping: In the 48 states; Canada, AK, HA \$5. extra. Credit card & COD: Shipping added. COD \$10. charge. We honor Master Chg, Visa, Discover Card, also accept with 4% surcharge: Amer. Exp., Diners & Carte Blanche, NY residents add sales tax. Federal, State and local government agencies, school and college orders accepted Net 30 Days, FOB shipping point.

**NORTH FORTY ENTERPRISES LTD.** P.O. Box 172B, E. Meadow NY 11554 Tel. (516) 679-8790 Fax (516) 783-4873 7 Days to 11 P.M.

Circle 89 on Reader Service Card.

**First Ever, for the Apple IIGS**  
**High Quality, Detailed clip art**  
**Over 1,500 Pieces!!!**

Subjects include: Sports, Business, Personal, Military, School, Religion, Symbols, Transportation, Space, Buildings, Animals & Insects, Patriotic, Occupations, Weapons & Landscapes

Graphic + IMAGES  
*Things you see Every day*  
Clip Illustrations  
Over 1,500 Highly Detailed DIGITIZED clip art images

Apple Preferred Format for the Apple IIGS.  
Over 1,500 images for only \$64.95  
Include \$4.00 shipping/handling CA residents add 6.17% tax  
Low price \$79.95  
Unlimited Software 2947 East Holland, Fresno CA 93726  
(209) 456-2986  
A Mail Order Company Allow 3-5 weeks for delivery

Circle 232 on Reader Service Card.

TEMPUS - BACKPUS  
**ANCHORMAN**

"... looks just like the real thing ... really is good fun"  
**Life Low, inCider**

**Virginia REAL**

**\$3995**

CALL (804) 587-4952  
VISA/MasterCard/Check/Money Order  
MAIL To: Virginia Real Software, Inc.  
Box 8545, Norfolk, VA 23503

Circle 283 on Reader Service Card.

**FACTORY FRESH RIBBONS**

Ribbon	Black	Color
Apple Imagewriter I, II	\$ 2.50	\$ 3.25
Imagewriter II 4 color		\$ 6.50
Imagewriter II 4 color Heat transfer	\$10.50	
Imagewriter LQ (Black and 4C)	\$11.50	\$15.95
Epson LX80/90	\$2.25	\$ 3.95
Epson MX/FX/RX80	\$2.90	\$ 3.90
Epson MX/FX/RX100	\$3.80	\$ 4.00
Star NX1000	\$4.50	\$ 5.50

5.25 double-sided, double-density. Multiples of 50 ... \$35  
3.50 double-sided, double-density. Multiples of 5 ... \$89  
**Hundreds more, call or write for prices.**  
**Colors (BLUE, RED, GREEN, PURPLE)**  
**-PREMIUM IS ALL WE SELL!**  
Shipping/Handling \$3 per order (over \$50 we pay S/H).  
Check, Money Order, C.O.D., School purchase orders accepted. New York residents please add sales tax.

**-MONEY BACK GUARANTEE**  
**ISLAND COMPUTER SUPPLY**  
Box 3495, Farmingdale, New York 11735  
(516) 798-6500

Circle 70 on Reader Service Card.



**/// LASER 128 ..... \$369.00**  
**LASER 128 E-X ..... \$409.00**  
**LASER 128 EXII-5.25.... \$439.00**  
**LASER 128 EXII-3.5..... \$489.00**

12" Monochrome . . . . .	96	Memory Card . . . . .	35
13" Magnavox RGB. . . . .	259	256K Memory . . . . .	55
14" Laser RGB. . . . .	294	Monitor Stand . . . . .	29
14" Samsung RGB . . . . .	237	Dust Cover. . . . .	19
Laser 145 (Epson) . . . . .	169	Keyboard Cover . . . . .	24
Laser 190 (Epson) . . . . .	199	Joy Stick . . . . .	25
Laser 190 (Apple Serial) . . . . .	247	Mouse. . . . .	65
Pull Tractor. . . . .	45	2400 Modem. . . . .	155
Star NX-1000 . . . . .	181	Modem Software . . . . .	75
Star Rainbow . . . . .	249	PC Viewer . . . . .	645
Ribbons (Black) . . . . .	4 (6)	Apple II Serial Card . . . . .	85
Cables . . . . .	19	Apple II Parallel Card . . . . .	59

## NEW SCIENCE PROSPECTS

Your full Laser® Computer Service Center  
 1200 Blalock Ln., Ste. 380, Houston, TX 77055  
 713-464-8303

School orders welcome

Circle 173 on Reader Service Card.

## FREE SOFTWARE

### TOP 10 IBM SOFTWARE

• 10 programs on 10 disks •  
 PC Write, PC Calc+, TreeView  
 DanCad, File Express, Moraff's  
 Revenge, HGCIBM, Novatron,  
 Home Base, Spacewars, plus  
 our 1600+ disk catalog

**PAY ONLY \$5.00 S/H**

• Visa/MC/Amex/Check  
 International Software Library  
 511 Encinitas Blvd. Ste 104  
 Encinitas, CA. 92024

**(619) 942-9998**

limited introductory offer

Circle 23 on Reader Service Card.

## Graphics

### THE ULTIMATE GRAPHICS

Tired of the same old Clip Art? So are we! Are you looking for Dragons and Demons? How about Aliens and Bizarre Creatures? If so, our disks are for you. We have three volumes of the most unique art available on one 3.5 or two 5.25 disks. Choose either Ite or Ilgs format. How much? Only \$12.95 each! As a special bonus buy 2 and receive the 3rd for only \$1 extra. Visa/MC OK. Include expiration date, card number and phone number. Please add \$2.00 for shipping and handling. New volumes coming soon!

### FANTASY DESIGNS

3723 Echo Valley Circle  
 LaGrange, Kentucky 40031

## How to Contact Your Advertising Representative At Incider

### DALE STRANG

Associate Publisher/National  
 Sales Manager

### PETER SLINGLUFF

Eastern Sales Manager

### DIANE MAGUIRE

Marketplace/Classifieds  
 Sales Representative

### IDGC/Peterborough

80 Elm Street  
 Peterborough, NH 03458

**(800) 441-4403 (603) 924-9471**

### JAMES BURNS

Southwest Sales Manager

### inCider

3350 W. Bayshore Road  
 Suite 201

Palo Alto, CA 94303

**(415) 328-3470**

## Public Domain

### PUBLIC DOMAIN & SHAREWARE

Big 48 page catalog with descriptions of many programs Over 40 programs on some disks. Program disks cost as low as \$1.99 each. Thousands of programs available. Our catalog gives you descriptions of many programs, not just a program name. Our seventh year. No membership fee to pay. Software programs in all fields, Education & School, Games, Art & Graphics, Astronomy, Business & Finance, Chemistry & Biology, Electronics, Ham Radio, Math & Statistics, Music & Sound, Appleworks™ templates, plus much more. Something for everyone no matter what your age or occupation. Send only \$2 for big 48 page catalog sent by return First Class Mail.

### COMPUTER BUDGET SHOPPER (CBS)

2203 Park Ave., Suite 17  
 Cheyenne, Wyoming 82007

### BEST VALUE IN APPLE PUBLIC DOMAIN

Our library of over 500 disks contain only the very best Public Domain and Shareware programs. Every disk is packed, organized and MENU-DRIVEN. We emphasize quality and professional service. We support our customers with prompt and personal responses to their questions and orders. WE have set a new standard in Public Domain software both in service and price. Our disks are only \$1.00 each and orders are shipped the NEXT DAY. Thousands have been pleased. TRY US! Send \$2.00 for a descriptive catalog and demo disk to:

### CHRISTELLA ENTERPRISE

P.O. Box 483  
 St. Clair Shores, Michigan 48080

### APPLE PUBLIC DOMAIN DISKS

Request free catalog or send \$2 for sample disk & catalog (REFUNDABLE). Categories include education, utilities, games, business, Print Shop graphics, shareware, EAMON and more. Rent for \$1 or buy as low as \$1.50 per disk. \$20 order gets 3 free disks of your choice. NEXT DAY SHIPPING!

### CALOKE INDUSTRIES (Dept. SK)

P.O. Box 18477  
 Raytown, MO 64133

## APPLEWORKS ↔ IBM

You can exchange AppleWorks data files with the most popular MS-DOS programs:

**AppleWorks Word Proc. ↔ WordPerfect**  
**AppleWorks Spreadsheet ↔ Lotus 1-2-3**  
**AppleWorks Data Base ↔ dBase III, IV, etc.**

It's easy! Just select file names from the menu. In seconds, **CROSS-WORKS** copies the files either way between your Apple II and IBM PC computers, and translates the file formats. Word Processor files maintain all underlining, margins, centering, etc. Spreadsheets transfer data and formulas! Transfers ASCII text files too. Includes universal 19,200 baud cable to connect IIe (with Super Serial Card), IIc, IIcPlus & Ilgs to PC, XT, AT, PS/2 & compatibles. Also supports modem transfers. Both 5¼ and 3½ inch disks included.

"...SoftSpoken's **CROSS-WORKS** carries the biggest stick in the file translation/transportation business... Rating: ★★★★★" — **InCider** July, 1989

**CROSS-WORKS - \$79.95** (+ Shipping & Hand.)

30 Day money-back guarantee! School P.O.s welcome.

☎ (919) 878-7725 for free information.



### SoftSpoken

P.O. Box 97623  
 Raleigh, NC 27624

Circle 127 on Reader Service Card.



## Education

### CONFUSED ABOUT SOFTWARE?

- Do you need help finding quality Educational and Entertainment Software?
- We sell over 1,500 programs below retail prices.
- Educators available to answer your questions and assist with your selections.
- 200+ page catalog available for \$5.00 (refundable with a purchase of \$25.00 or more).
- Let us help you find the best programs for your family.

### EDUCATIONAL SOFTWARE SERVICE

40 San Domingo Way, Dept. B  
Novato, CA 94945  
(415) 898-2877

## Software

### SOLITAIRE & CRIBBAGE

Long time favorites, completely revised for the IIGs. Loaded with options. Five versions of Solitaire; Klondike (1 & 3 at a time), Picture Frame, Pyramid, and Monte Carlo. Three versions of Cribbage. Features pull down menus, file save, auto moves, fast pace, change colors, audio on/off, an alarm clock to bring addicted players back to reality, and more. Not copy protected. Requires Apple IIGs-512K, mouse & 3.5 drive. \$34.95 + \$3.00 S/H. Check or Money order. CA res. add sales tax.

### COMPUTREK

28278 Enderly Street  
Canyon Country, CA 91351  
(805) 252-4244

### MIGHT & MAGIC II AIDS

A complete list of equipment with attributes is now available. When you find an item, know all about it immediately without having to visit a blacksmith shop. Also includes a complete list of monsters giving hit points, armor class, and other information. Why waste time during battle to identify monsters? Only \$5.00, 5 1/4" disk for AppleWorks \$10.00.

### KEN RICE

4110 North 17th St.  
Arlington, VA 22207

### DISCOVER DESKTOP VIDEO!

Dramatic teaching tools, sparking business presentations, animated videos—the PRESENTER™ delivers. Show your favorite Hi-res graphic or text files: remote, manual, or timed. Up to 100 pictures per disk, unlimited disks! Continuous shows, sounds, animation, and hypermedia-like effects. Friendly, flexible, LiME™ command language teaches programming. Draw/capture included. Runs on any Apple II—48K to IIGs! VISA, MC, check, M.O., school P.O., \$44; demo \$5; Class-pack-5 disks, teacher guide, \$94. FREE shipping.

### PROFORM Development Corp.

65 Washington Street — Suite 50  
Santa Clara, CA 95050  
CompuServe: 73720,2100  
Orders (24hr): 800-628-2828, ext. 500

### FAMILY ROOTS™

Huge variety and capacity for your family history. Make four kinds of pedigree charts, two descendants charts, two group sheets, Indices address labels, more. Do screen tracing and searches through your data. Numerous variations possible on each form. Interfaces with a word processor. Add-ons available. Call for FREE information. Satisfaction guaranteed! All Apples, Macs, PCs and more. MC/VISA/AMEX

### QUINSEPT

P.O. Box 216  
Lexington, MA 02173  
617-641-2930 (MASS)  
800-637-ROOT (US)

### HRS SOFT SOLUTIONS

Presents HRS.STARTUP! This multifaceted program for ProDos has everything. It displays in 40 or 80 column format automatically sensing the presence of an 80 column card. It lists 30 files on a single page of menu or 200 on multiple pages from a single directory. It supports Subdirectories. It will allow you to change disks or pathnames without leaving the menu. Programs can be selected through arrow keys or with a numeric value. Plus on screen HELP. Disk & instruction book for \$7.95 including tax & shipping.

### HRS Soft Solutions

400 Keystone Ct.  
Blue Springs, MO 64014  
(816) 228-3758

## Mail-Order

### LOW PRICES—GREAT PRODUCTS!

- X-10 Home Control: automate your home, increase security, save energy, enjoy added convenience. Does not tie up your computer!
- FASTHOUSE X-10 software for Apple IIGs/IIC+ version \$34.95 (w/cable) II+/IIe/IIC version \$19.95.
- Most major brands of software and hardware for Apple and Macintosh
- RC Systems, Inc. Slotbuster II like having six cards in one slot!
- HyperPOS/Hyper Ship: HyperCard point of sale/inventory control and UPS shipping (Macintosh).
- Call for prices. VISA/MC accepted.

### KADO SYSTEMS

P.O. Box 1115  
Pflugerville, TX 78660  
(512) 990-2390

## Hardware

### APPLE IIe MEMORY BOARDS

Apple IIe Expansion board, 100% AppleWorks compatible, AST Research sprint disk. Maximum configuration of 1 Megabyte.

256K for \$ 99.00

512K for \$149.00

768K for \$179.00

1024K for \$199.00

Limited quantity, prices subject to change.

1-800-383-7446

### MICROTECH CONSULTING

P.O. Box 521  
Cedar Falls, IA 50613

## Music

### MIDI KEYFRETTS FOR APPLE II

Allows your MIDI equipped keyboard to create guitar styles via your Apple II computer. A completely tunable virtual 10 string guitar is playable using a totally different keyboard technique. Strums, arpeggios, and hammer-ons become possible and your monitor displays the fingering as it plays. Passport type interface required and 64K. Just \$25 (including P&H) and guaranteed.

### SOFTROCK D&D

P.O. Box 164085  
Little Rock, AR 72206

### ELECTRONIC MUSIC MIDI HELP

*MIDI Christmas Packs Apple II \$119., GS \$219:* A Guide to Computer Music, MIDI Interface, Sequencing Software, MIDI Cables all included. *A Guide to Computer Music* An Introductory Resource Book \$16.95. MIDI GS Starter & ProPacs; Interface, Sequencer, Cables, Music Printing, Software from \$99.00 to \$699.00. Apple II, IIe, GS, Mac, Atari, Commodore, IBM, Customized MIDI Systems. MasterTracks \$169.00, Jr. \$109.00, Pro \$199.00, Polywriter \$209.00. MIDI Thru Box \$89.00. Studio Plus Two-GS \$185.00. Music Writer GS \$99.00. MIDI Translator GS \$69.00, HyperStudio GS \$89.00, MIDI Interfaces from \$89.00. Call for catalog, RAM up-grades, and MIDI Librarians, TransWarp, Vulcan prices, Sonic Blaster, Audio Animator and Phaser. Keyboards: Casio FZ2 \$1299., VZ1 \$949., Kawai K1 \$749., Digital Drum Machine R50E \$399.

### SOUND MANAGEMENT

P.O. Box 3053  
Peabody, MA 01961  
Check, MO, VISA, MC, School P.O.  
(800) 548-4907 US  
(508) 531-6192 MA

## Insurance

### INSURE YOUR COMPUTER

Safeware provides full replacement of hardware, media, and purchased software. As little as \$39 a year provides comprehensive coverage. With blanket coverage, no lists of equipment are needed. One phone call does it all! Call 8am to 10pm ET (Sat 9 to 5).

### SAFWARE, THE INSURANCE AGENCY INC.

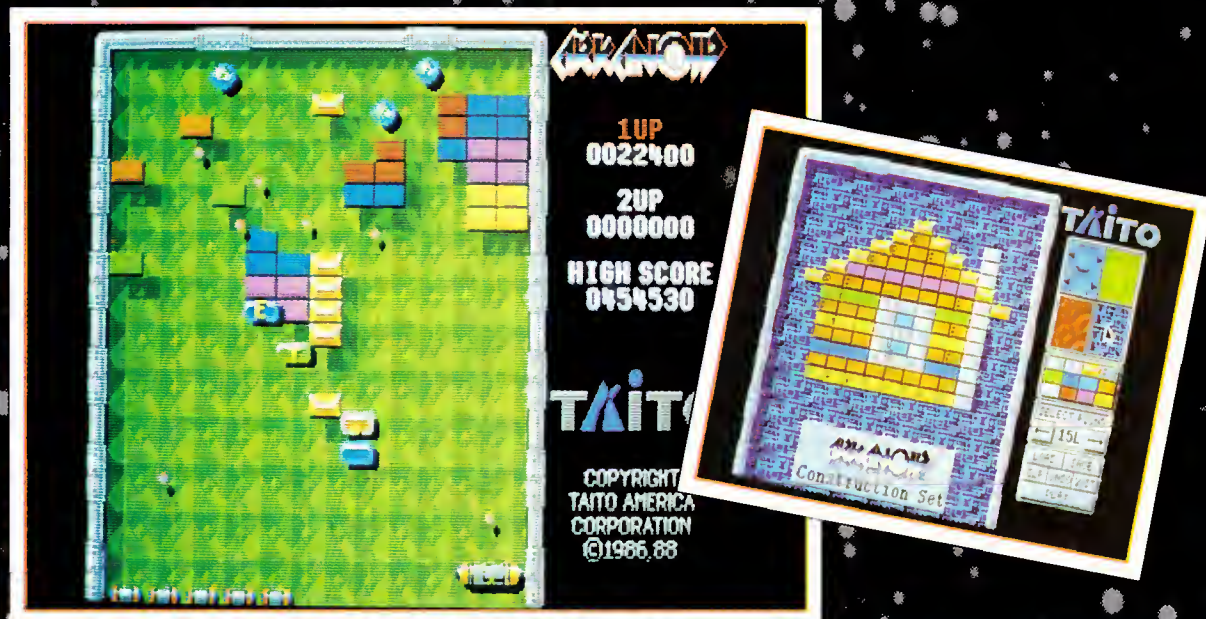
2929 N. High St.  
P.O. Box 02211  
Columbus, OH 43202  
(800) 848-3469 Nat;  
(614) 262-0559 (OH)

Use inCider's Classified  
Section to showcase your  
Apple II products.  
Contact Diane Maguire  
at 1-800-441-4403  
for further details.



EDITORS' CHOICE

# ARKANOID II: REVENGE OF DOH



**J**UST WHEN YOU THOUGHT YOU COULD FINALLY GET back to work . . . the villainous star of Taito's first Arkanoid returns with a vengeance. Doh's the *someone* the game makers claim has warped time and space, the monster you had to hit 15 times in the final level of Arkanoid—and in game II he makes that first encounter look like a walk in the park. This one's got twice the number of levels—33 to the left and 33 to the right—and you'll have to conquer them all before you get the chance to do battle with Doh.

What's your strategy? Arkanoid II offers some of the same "pills" you caught in part I—pills that slow the action; pills that make your "Vaus" (your ship) larger or give you an extra Vaus; pills that snare the energy ball or split it in three; pills that shoot lasers or help you sneak out the side door. But now there are even more, and they come rolling down at a furious pace: pills that give you a double Vaus, or a half-sized one carrying twice the number of points; pills that create a "shadow" to follow your Vaus and deflect energy balls; and special glowing pills that randomly give you rapid-fire lasers, 20 energy balls, 20 mega balls that break through any energy brick they hit, or nothing at all.

"The new pills are by far the best part of the new Arkanoid," says Review Editor and devoted fan Lafe Low. "I love the M, which gives you an orange nuclear-powered death ball that cuts through anything, even the yellow bricks. That's a great one to snag on those

killer levels you just can't seem to get through any other way."

It may take years or it may never happen at all, but if you do tire of Arkanoid II, don't worry. This one also includes a Construction Set for designing your own levels. Just press C at the title screen. From there, let your imagination run wild. Design twisted labyrinthian passageways and convoluted caverns of energy barriers; you can choose background hues, the colors of the energy blocks, which blocks will yield pills, and which will move.

"As much as I enjoy playing—and that's a lot," says Senior Editor Paul "Arkanoid Hero" Statt, "the greatest part of Revenge of Doh is the Construction Set. In addition to making the game theoretically limitless, it's a great way to compete with a friend. Lafe Low and I concocted the most fiendish levels we could imagine and challenged each other to finish. I'm hooked, again."

Arkanoid II sells for \$34.95 from the wizards at Taito Software, 267 West Esplanade, North Vancouver, British Columbia, Canada V7M 1A5, (604) 984-3344. Don't even try to say no, because you can't. □

EDITORS' CHOICE SINGLES OUT ONE PRODUCT EACH MONTH THAT THE INCIDER EDITORS FEEL IS A SIGNIFICANT ADDITION TO THE APPLE II FAMILY OF PRODUCTS. PRODUCTS EVALUATED ARE AMONG THE MOST RECENT RELEASES AND MAY NOT BE AVAILABLE YET FOR RETAIL DISTRIBUTION.



*"If it didn't say  
Kensington on the  
front, you might  
think it came  
from Cupertino."*



System Saver IIgs, \$99.95

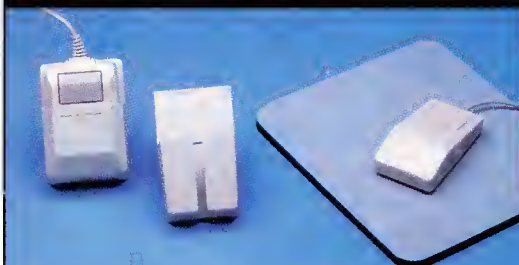
Editors' Choice  
inCider magazine



System Saver®, \$89.95



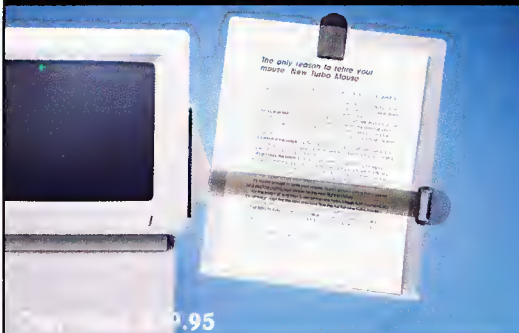
Apple® Security System, \$49.95



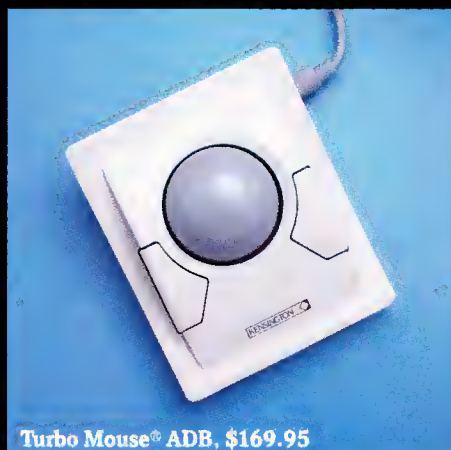
Mouseway, Mouse Pockets, \$9.95 ea.



IIgs, \$99.95



Printer Muffler, \$9.95



Turbo Mouse® ADB, \$169.95



Printer Muffler, \$60.95 and \$29.95



Universal Printer Stand, \$24.95



Dust Covers, \$9.95 to \$24.95

That's why inCider magazine named System Saver IIgs Editors' Choice for March '88.

They were impressed at how well its styling blends in with the IIgs. They appreciated the convenience of its front-mounted switches. And they loved the way it offers surge suppression, extra outlets and a cooling fan, all for \$99.95. In summary, they thought it went "a long way toward making the computer easy to use."

Of course, we were delighted with their reaction. After all, making the Apple II easier to use is something we've been working on for the last seven years. In fact, we've figured out so many ways to do it, we can't fit them all on one page.

That's why we've also made it easy for you to get more information. Just call the toll-free number below, and we'll send you a free 20 page brochure. Or write to us at Kensington, 251 Park Ave. S., NY, NY 10010. (212) 475-5200.

**Call (800) 535-4242**

**KENSINGTON** 

*Setting new standards  
of performance.*



# A word about our IIGS games:



At a time when so many games are being intellectualized, commercialized, standardized and FANFARE takes you back to basics—with good old-fashioned fun.

And now for a few words on our first three titles:

## GREAT WESTERN SHOOTOUT!

This is some of the root 'n tootiest, bangin'est, shootin'est, arcade action you'll ever put your trigger-happy fingers on.

You're "The Law"—armed with a six-shooter that doesn't quit. And you're out to git them outlaws—and they're everywhere.

They're holding up the hotel. Busting the bank. And shooting up the saloon.

## LASER FORCE

A twist on extra-terrestrial combat: you're in someone else's game. Armed with laser guns, you and your partner (two can play at once!) fend off throngs of robots. All different. All programmed to kill. You'll move, shoot, even hide your way through 75 incredible 3-D screens.

And when you're ready for more, create your own game screens. For your own brand of fun.

## GNARLY GOLF

18 of the most outrageously gnarly holes you'll ever sink a ball into.

Catch a ride on a conveyor belt for a Par 3. Slice your way through an operating room for a Par 4. Or plant a hook around a hamburger for a Par 6.

With inclines, bridges, catapults and more, Gnarly Golf puts all your senses to the test—especially your sense of humor.

Once you get your hands on our new games, you'll instantly see why there's only one word that describes them.

IIGS® is a registered trademark of Apple Computer. FANFARE™, Great Western Shootout™, Gnarly Golf™, and LaserForce™ are registered trademarks of Britannica® Software.

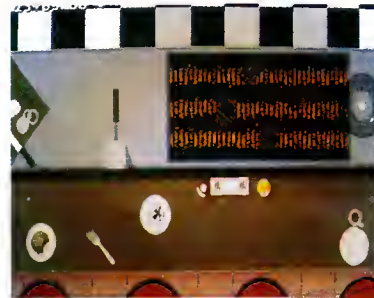
**FANFARE™**  
by Britannica® Software



Great Western Shootout 512K \$29.95



Laser Force 1.2 Meg. \$29.95



Gnarly Golf 512K \$29.95

Look for all three Fanfare titles in software stores near you. Or call us at **800/572-2272** (in CA: 415/546-1866).

Circle 32 on Reader Service Card.